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LearnEveryWare

# Math 6 Unit 2

## Workbook

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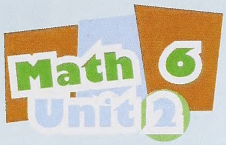


Math 6 Learn EveryWare – Unit 2 Workbook
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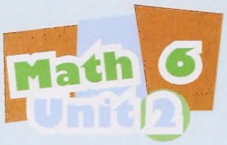


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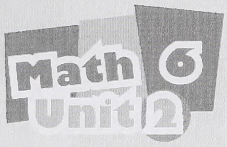


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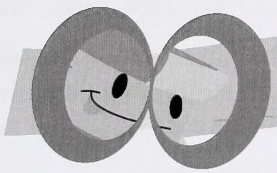
# Lesson 1

## Introduction to Integers



### Let's Explore

**Exploration 1: Elevations and Integers**

**Materials:** Internet or almanac, Pencil

The elevation of a place is the measure of the distance above or below sea level.

1. Use the Internet or an almanac to find the elevation of three places that are above sea level.
2. Find three places that are below sea level.
3. Record the name of the place and the elevation of each in the table, using an integer.

| Below Sea Level | |
|---|---|
| **Name of Place** | **Elevation** |
| | |
| | |
| | |

| Above Sea Level | |
|---|---|
| **Name of Place** | **Elevation** |
| | |
| | |
| | |

**Exploration 2: Exploring Opposites**

**Materials:** Integer Counters from the back of this Unit in your Workbook, Pencil, Scissors

You can use integer counters to help you understand the relationship between positive and negative integers. An integer counter with a + represents a positive integer of +1. An integer counter with a – represents the integer -1.

**Cut out and use integer counters to complete the following.**

1. Model -10.

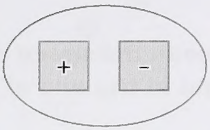
2. Model +10.

3. What is the same about the two models?

4. What is different about the two models?

A zero pair is found by putting a + integer counter together with a – integer counter. This is called a zero pair because the result of pairing the two is zero.

**Zero Pair**




5. How many zero pairs can you make with your models of -10 and +10 together?

6. Create a model of a pair of opposites.

7. Write the values of your opposites.

8. How many zero pairs can you create from your models?

9. What is the value of a zero pair? Explain.

10. Make a model of +5 and -3. How many zero pairs can you make?

**For 11-14: Either record an oral answer or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.**

11. Describe the integer counters that are not part of the zero pairs.

12. Choose the word that best completes this statement: A pair of opposites (always, sometimes, or never) creates the same number of zero pairs.

13. Reflect: What is the sum of a pair of opposites? Explain.

14. Reflect: Which integer does not have an opposite? Explain.

Recording instructions: Start your recording by saying: My name is _____. This is Math 6, Unit 2, Lesson 1, Exploration 2.

Be sure to hand in your recording with your Workbook.

## Let's Practice

1. Reflect: Describe three characteristics of the set of integers.

**For 2 – 8: Write an integer for each situation.**

2. 150 metres below sea level

3. a temperature increase of $15^{\circ}$ Celsius

4. a gain of $200

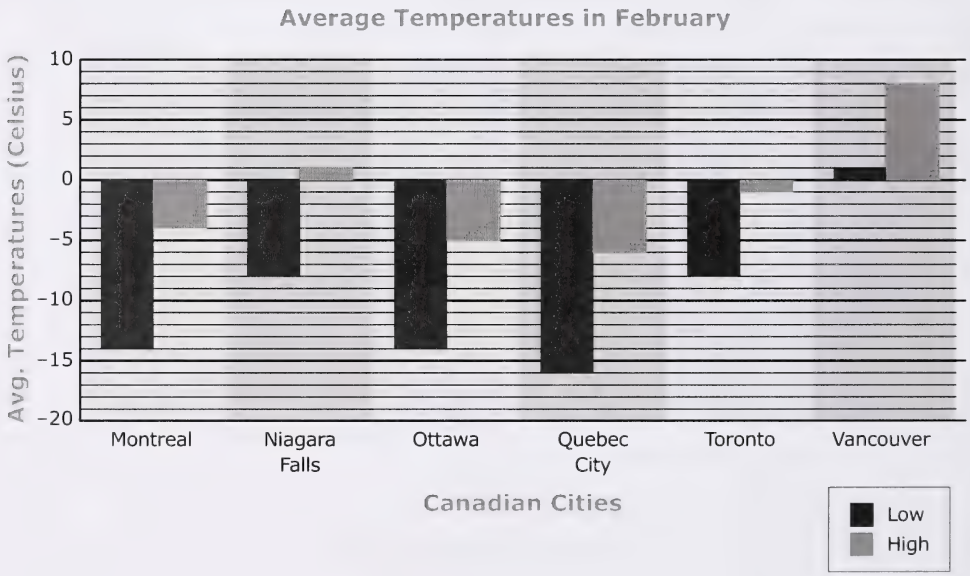
5. a loss of 30 yards

6. 10 metres above sea level

7. a weight loss of 2 kilograms

8. a temperature decrease of $10^{\circ}$ Celsius

**For 9 – 12: Use the graph of the average temperatures for cities in Canada during the month of February.**




9. What does the value -16 represent for the average low in Quebec City?

10. Write the integer that represents the average low for each city.

Montreal _____ Niagara Falls _____ Ottawa _____

Quebec City _____ Toronto _____ Vancouver _____

11. Write the opposite of each average low.

Montreal _____ Niagara Falls _____ Ottawa _____

Quebec City _____ Toronto _____ Vancouver _____

12. Describe the lowest average temperature on the graph.

**For 13 – 16: The following are some of the lowest points on Earth.**

| Name | Location | Elevation |
|---|---|---|
| The Dead Sea Depression | Syria, Jordan and Israel | 413 metres below sea level |
| Lake Assal | Djibouti, Africa | 155 metres below sea level |
| Turfan Depression | China | 154 metres below sea level |
| Qattara Depression | Egypt | 133 metres below sea level |

13. Write an integer for the elevation of Lake Assal.

14. Write an integer for the elevation of the Qattara Depression.

15. Which point has the deepest elevation?

16. Write the opposite of the elevation of The Dead Sea Depression.

**For 17 – 20: Graph each set of integers on the given number line.**

17. {0, -3, 4}

18. {-4, 1, 3, 6}

19. {-3, -1, -8, -5}

20. {-5, 0, 3, -3, -1}

21. How many units apart are -3 and 5 on a number line?

22. Reflect: Which integer is neither positive nor negative? Explain.

## Mixed Review

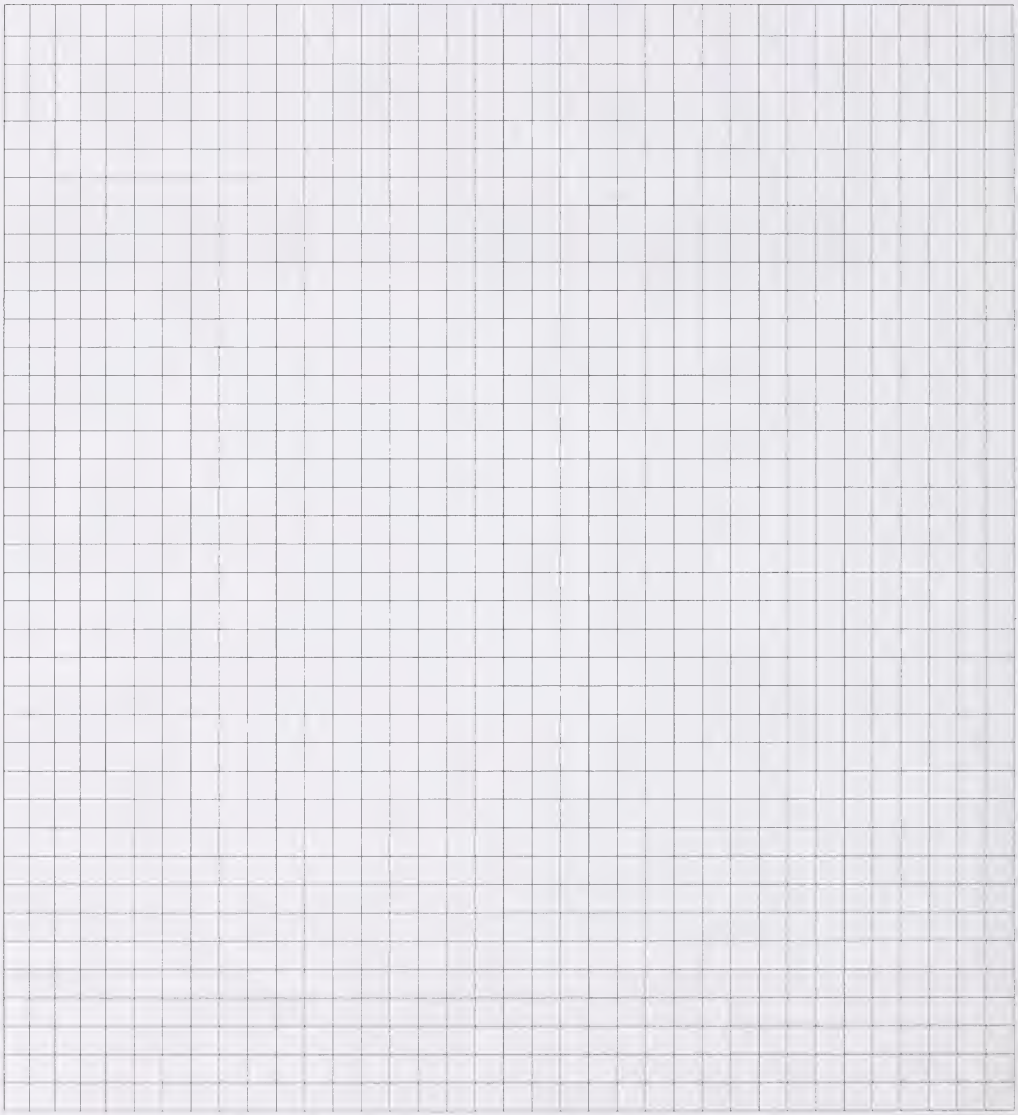
1. ____ + 7 = 15

2. ____ + 3 = 15

3. ____ + 8 = 15

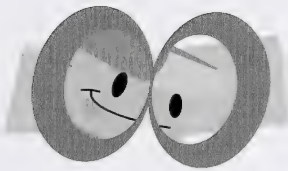
4. ____ + 2 = 15

5. ____ + 5 = 15



# Lesson 2

**Ordering Integers**



## Let's Explore

### Exploration 1: Ordering Temperatures

**Materials:** Internet or almanac, Pencil

1. Use an almanac or the Internet to research the average low temperatures in your province over the last twelve months. Record the temperatures in the given table.

| Month | Low Temperature |
|---|---|
| January | |
| February | |
| March | |
| April | |
| May | |
| June | |
| July | |
| August | |
| September | |
| October | |
| November | |
| December | |

2. Order the temperatures you have found from least to greatest.

3. Describe some other values that you could find in an almanac that are integers.

4. Write two inequalities using your list of integers.

## Let's Practice

**For 1 – 6: Order the given integers from least to greatest. Draw a number line if needed.**

1. {3, -2, 0, 1}

2. {-4, -8, -3, 1}

3. {7, -3, -2, 5, 3}

4. {4, -2, -6, -4, 0, -1}

5. {-4, -9, -7, -2, -8, -1}

6. {-14, -19, -10, -16, -18, -15}

**For 7 - 12: Order the given integers from greatest to least. Draw a number line if needed.**

7. {-2, -8, -4, 0, 7, 3, -3}

8. {2, -2, 4, -4, 5, 7, -7, 9}

9. {-32, -38, -29, -35, -33, -28}

10. {8, -3, 7, -1, 2, 3, 0}

11. {7, 1, -4, 0, 8, -2, -5}

12. {-15, -12, -18, -20, -11, -10}

**For 13 – 20: Compare the given numbers using <, >, or = symbols.**

13. -2 _____ -8

14. 3 _____ -1

15. -1 _____ -10

16. -11 _____ -11

17. -3 _____ -1

18. -21 _____ -19

19. -12 _____ -1

20. -42 _____ -42

21. One day in December, the temperature in Whitehorse, YT was -27°C, Vancouver, BC was -2°C, Calgary, AB was -29°C, Edmonton, AB was -25°C, Regina, SK was -30°C, and Yellowknife, NT was -32°C. Write the correct order of the cities, from coldest to warmest for that day.

22. Is +2 greater than all the negative integers? Explain.

23. Explain why any negative integer is less than any positive integer.

24. At 4 a.m., one day in January, the temperature in Edmonton, AB was between -30°C and -25°C. Write two temperatures that meet that description.

25. Reflect: Write a mixed number between -4 and -3.

## Mixed Review

**For 1 – 3: Complete to make each sentence true.**

1. _____ + 4 = 10

2. _____ – 2 = 10

3. _____ + 8 = 10

**For 4 – 5: Write the next three terms in the pattern.**

4. 2, 8, 14, 20, _____, _____, _____

5. 28, 25, 22, 19, _____, _____, _____

# Lesson 3

## Order of Operations

### Let's Explore

**Exploration 1: Does Order Make a Difference?**

**Materials:** Calculator (must have parentheses), Pencil

1. Observe the following expressions:

   $80 \div 2 \times 8 + 9$

   $80 \div (2 \times 8) + 9$

   $80 \div 2 \times (8 + 9)$

2. Do you think each expression will have the same answer? Explain your answer.

3. Use your calculator to find each answer:

   $80 \div 2 \times 8 + 9 =$ _____

   $80 \div (2 \times 8) + 9 =$ _____

   $80 \div 2 \times (8 + 9) =$ _____

4. Place parentheses in the problem to create a sentence equivalent to 30.

   38 + 4 ÷ 7 x 3 + 2

**For 5 – 6: Either record an oral explanation or write one in the space provided. If recording, follow the recording instructions found at the end of this exploration.**

5. Explain how you found your answer to number 4.

6. Explain how the order of operations is used to solve this problem:

   6(13 + 7) – 4(8) x 9 x 2

Recording Instructions: Start your recording by saying: My name is _____. This is Math 6, Unit 2, Lesson 3, Exploration 1.

Be sure to hand in your recording with your Workbook.

## Let's Practice

**For 1 – 16: Simplify the expressions. Show all steps used to simplify.**

1. (3 + 6) x 8

2. 24 ÷ (3 x 2)

3. $7 + 2 \times 3$

4. $(16 - 4) \times 3$

5. $3 \times 4 + 2 \times 3$

6. $10 + 14 \div 2$

7. $80 - 4 \times 20 + 1$

8. $3(2 + 5) - 3 \times 5$

9. $48 \div (3 \times 4) + 2$

10. $3 \times 9 - 8$

11. $45 \div (3 \times 3) \times 2$

12. $75 - 2(3 \times 7) + 8$

13. $25 \div 5 + 8(11 - 4)$

14. $42 \div (18 - 12) + 4(9)$

15. $12 \times 7 - 18 \div 6$

16. $8(5 + 7) - 24 \div (3 + 9)$

**For 17 – 20: Use a calculator to find each answer. Underline the first step in the order of operations.**

17. $587 + 3(136 - 42) - 5 \times 18$

18. $300 \div (28 - 16) + 5(18 \times 2)$

19. $2\,540 - 48(15) + (9\,800 + 175) \div 35 + 6(120)$

20. $675 \times 12 + 400 \div 80 - 125 \times 8$

**For 21 – 23: Write an expression for each problem. Simplify the expression using a calculator.**

21. Zach and Lian are planning a party. They go shopping with Lian's mom and purchase 2 packs of cups for $4.50 each, 1 tablecloth for $6.95, three packs of plates for $3.75 each and a pack of napkins for $2.85. What was the total cost of their paper goods?

22. There are 24 students in Mr. Einstein's science class. He will give each pair of students 5 slides to study under a microscope. So far, he has given 9 pairs of students their 5 slides. How many more slides does he need so that each pair of students has exactly 5 slides?

23. Cameron, Alyssa, and Daksha are selling gift wrap to raise money for charity. Cameron sells 48 packages for $8 each. Alyssa sells 52 packages and Daksha sells 58 packages, all for $8 each. How much money did they raise for charity?

24. Place parentheses in the problem to create a sentence equivalent to 232.

    $28 - 6 \times 3 + 8 - 2 \times 5$

25. Describe the process of the order of operations.

**For 1 – 5: Complete each sentence to make a true statement.**

1. ____ x 12 = 36

2. ____ x 10 = 40

3. ____ x 11 = 55

4. ____ x 15 = 45

5. ____ x 18 = 36

# Lesson 4

**Writing and Simplifying Expressions**

## Let's Explore

### Exploration 1: What's My Rule?

**Materials:** Function rule cards and pages of function tables from the back of this Unit in your Workbook, Scissors, Pencil

**This is a game that should be played with two players.**
**Find a partner to play it with you. Cut out the function rule cards and place them face down in a stack on the table. Each player gets a sheet of function tables.**

**Player A:**

1. Draw a card from the deck.
2. Fill in a function table using this function rule.
3. Show the table to Player B.

**Player B:**

1. Guess the rule for Player A's table.
2. If you get the rule correct, you get one point.
3. Draw a card and repeat the process.

Players take turns until each player has had 5 chances to guess the rule. The player with the most points wins.

**For the Reflect: Either record an oral description or write in the space provided. If recording, follow the recording instructions found at the end of this Exploration.**

Reflect: Describe the strategies you used to find the function rules.

Recording instructions: Start your recording by saying: My Name is: _____. This is Math 6, Unit 2, Lesson 4, Exploration 1.

Be sure to hand in your recording with your Workbook.

## Let's Practice

**For 1 – 10: Write a variable expression for the given statement or situation.**

1. Daksha's allowance plus $45

2. three more than the number of cookies baked

3. ten seconds faster than Alyssa's time

4. some number less than ten

5. the quotient of a number and 10

6. the difference of five times a number and eighteen

7. five times the product of a number and six

8. eight more than a number divided by four

9. four more than a number times three

10. the quotient of a number and five plus the number

**For 11 – 16: Evaluate if a = 9, b = 12, and c = 3. Show your work.**

11. $5b - 18$

12. $15 + 8c$

13. $12 + \frac{6c}{9}$

14. $4ac - 2b$

15. $3(a + b) - 5c$

16. $4b + 9a - 8c$

**For 17 – 19: Evaluate if k = 2, m = 3.8 and n = 2.5. Show your work.**

17. $4m$

18. $\frac{m}{k} + n$

19. $3n - m$

20. Write an expression for the situation:

    An elk can run at a rate of 72 km per hour for t hours.

21. Use your answer to number 20 to solve:

    How many kilometres can an elk run in 3 hours?

22. Write an expression for the situation:

    A telephone company charges $25 for a one month fee and $0.28 per minute for each minute used.

23. Use a calculator. Evaluate the expression you wrote in number 22 using the following information:

    Alyssa talked on the telephone for 128 minutes in January.
    How much were her charges?

**For 24 – 27: Complete the function table.**

24.

| m | 12m |
|---|---|
| 0 | |
| 8 | |
| 10 | |
| 15 | |

25.

| x | 2x – 1 |
|---|---|
| 3 | |
| 8 | |
| 10 | |
| 20 | |

26.

| n | $\frac{3n}{4} - 2$ |
|---|---|
| 4 | |
| 8 | |
| 12 | |

27.

| q | 8q + 2 |
|---|---|
| 15 | |
| 19 | |
| 25 | |
| 30 | |

**For 28 – 31: Find the function rule for the table.**

28.

| n | ☐ |
|---|---|
| 4 | 1 |
| 8 | 2 |
| 16 | 4 |

29.

| x | □ |
|---|---|
| 18 | 14 |
| 19 | 15 |
| 21 | 17 |
| 25 | 21 |

30.

| y | □ |
|---|---|
| 4 | 10 |
| 6 | 16 |
| 8 | 22 |
| 10 | 28 |
| 12 | 34 |
| 14 | 40 |

31.

| f | □ |
|---|---|
| 0 | 1 |
| 1 | 11 |
| 2 | 21 |
| 3 | 31 |
| 4 | 41 |
| 5 | 51 |

32. Use the symbols +, −, x, and ÷ to make the following math sentence true. Write each symbol only once.

8 ____ 2 ____ 1 ____ 3 ____ 4 = 5

33. Reflect: Write a situation and the expression for that situation.

**For 1 – 5: Write the prime factorization of each number. Tell if the number is prime or composite.**

| | Number | Prime Factorization | Prime or Composite? |
|---|---|---|---|
| 1. | 28 | | |
| 2. | 55 | | |
| 3. | 29 | | |
| 4. | 17 | | |
| 5. | 84 | | |

# Lesson 5

**Writing an Addition or Subtraction Equation**

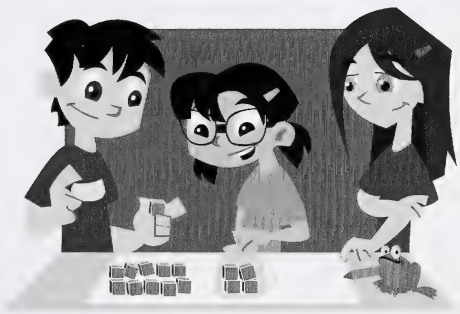
## Let's Explore

### Exploration 1: Many Ways to Write Equations

**Materials:** Counters, 2 Small Cups, Pencil

**Work with a partner. You will take turns hiding counters under your cup. The cup represents the variable.**

1. Put 15 counters in the middle of your work space.
2. Partner 1 takes some counters and hides them under a cup.
3. Write a subtraction equation to describe the action.



4. Write an addition equation to describe the action.

**The Cup Represents the Variable**

5. Put all of the counters back together.
6. Partner 2 takes some counters and hides them under a cup.
7. Write a subtraction equation to describe the action.

8. Write an addition equation to describe the action.

**For 9: Either record an oral description or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.**

9. Describe how addition and subtraction equations describe the same action.

10. Write an equation and model it using your cup and counters. Sketch your model.

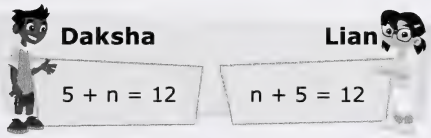
Recording instructions: Start your recording by saying: My name is _____. This is Math 6, Unit 2, Lesson 5, Exploration 1.

Be sure to hand in your recording with your Workbook.

## Lesson 5: Writing an Addition or Subtraction Equation

### Let's Practice

**For 1 – 2: Daksha and Lian write the following equations for "five more than a number is twelve."**




1. Which equation(s) is correct?

2. Explain your answer to number 1.

3. Write n + 8 = 20 in at least two other ways.

4. Write x + 7 = 10 as a subtraction equation.

5. Write $12 - p = 5$ as an addition equation.

6. Why are there fewer ways to write a subtraction equation than an addition equation?

**For 7 – 15: Write an equation for each statement.**

7. Four less than a number equals 12.

8. 14 more than a number is fifty-four.

9. Some number and five more is twenty.

10. 8 less than a number equals 15.

11. Seventeen equals five less than some number.

12. Forty is twenty-one more than a number.

13. Eight more than a number is twenty.

14. The sum of a number and six is eighteen.

15. The difference between nine and a number equals five.

**For 16 – 17: Write each equation in words.**

16. $x + 4 = 7$

17. $15 - n = 10$

18. Alyssa has collected 6 silver coins. Nina gave her some more and then Alyssa had 15. Write an equation to find the number of silver coins Nina gave to Alyssa.

19. Mr. Kaminsky makes the same trip to and from work almost every day. On Friday, he drives an extra 28 kilometres to pick up his daughter from hockey practice. He drives 67 kilometres on Fridays. Write an equation that shows the distance Mr. Kaminsky drives on a regular day.

20. Zach's dog lost 5 kilograms. It now weighs 15 kilograms. Write an equation to find the original weight of the dog.

21. The difference between the average high and the average low in Victoria, British Columbia is $11^{\circ}$ C. Write an equation to find the average high temperature.

| **Victoria, British Columbia** | |
|---|---|
| **Average Temperature in July** | |
| High | ? |
| Low | $11^{\circ}$ C |

22. Cameron bought a backpack for $32. This was $12 less than the regular price. Write an equation to find the regular price.

23. A hockey team practiced 3 hours less today than they usually practice. Today they practiced 2 hours. Write an equation to find how many hours they usually practice.

24. A song is made up of the introduction and four verses. Each verse is the same length. The introduction is 20 seconds. The entire song, including the introduction, is 5 minutes long. Write an equation to find the length of the verses.

25. Write the equation $x + 3 = 9$ in two different ways.

## Mixed Review

**For 1 – 5: Multiply.**

1. 4 x 4 = _____

2. 7 x 6 = _____

3. 4 x 9 = _____

4. 77 x 11 = _____

5. 20 x 15 = _____

# Lesson 6

**Solving an Addition or Subtraction Equation**

## Let's Explore

**Exploration 1: Balancing Equations**

**Materials:** Balance Beam Mat, Balance Beam Models, Scissors, Pencil

1. Cut out the balance beam models.

2. a. Model $x + 3 = 10$ on your Balance Beam Mat.

   b. In $x + 3 = 10$, what value does **x** represent?

   c. Add 2 to both sides of the equation.

   d. What value does **x** represent?

3. a. Model $x + 4 = 9$ on your Balance Beam Mat.

   b. In $x + 4 = 9$, what value does **x** represent?

c. Add 2 to both sides of the equation.

d. What value does **x** represent?

e. Reflect: Why doesn't the value of **x** change when you add the same amount to both sides of the equation?

4. a. Model $x + 8 = 12$ on your Balance Beam Mat.

   b. In $x + 8 = 12$, what value does **x** represent?

   c. Subtract 5 from both sides of the equation.

   d. What value does **x** represent?

5. a. Model $x + 9 = 16$ on your Balance Beam Mat.

   b. In $x + 9 = 16$, what value does **x** represent?

   c. Subtract 5 from both sides of the equation.

   d. What value does **x** represent?

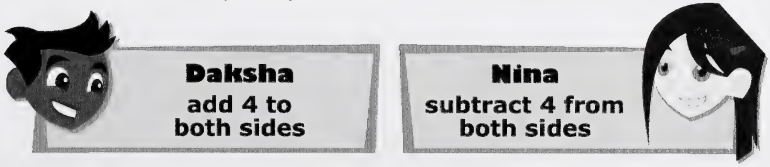
e. Reflect: Why doesn't the value of **x** change when you subtract the same amount from both sides of the equation?

## Let's Practice

1. Describe how to solve an addition equation.

2. Describe how to check an equation.

3. Daksha and Nina are describing how to solve the equation m − 4 = 7. Who is correct? Explain your answer.



4. Without solving the equation $x + 8 = 12$, what is a good estimate for the solution?

   a. between 1 and 3
   b. between 3 and 5
   c. between 6 and 10
   d. between 18 and 23

5. Draw the model for $x + 3 = 7$ on the balance beam shown.

6. Draw the model of the equation $x - 5 = 10$ using algebra tiles.

7. Use the model in number 6 to solve the equation. What is the solution?

**For 8 – 23: Solve the equation. Check your solution.**

8. $b - 18 = 21$

9. $y + 5.4 = 9.7$

10. $m + 47 = 92$

11. $j - 3.25 = 7.63$

12. $17 = k + 4$

13. $8 = u - 12$

14. $x + 29 = 54$

15. $43 + p = 76$

16. $a - 4.8 = 6.3$

17. $b + 6.7 = 8.4$

18. $78 + u = 128$

19. $r - 92 = 14$

20. $k + 14 = 39$

21. $w - 48 = 13$

22. $x + 15.6 = 40$

23. $y - 4.37 = 19.24$

24. Solve $x + 25 = 17 + 34$. Explain how you found your answer.

25. Reflect: Write two equations that have a solution of 12. How did you write your equations?

## Mixed Review

**For 1 – 4: In a bag there are 8 green marbles and 7 blue marbles.**

1. What is the total number of marbles in the bag? _____

2. How many are green? _____ How many are blue? _____

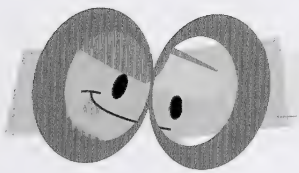
3. What fraction of the marbles are green? _____

4. What fraction of the marbles are blue? _____

5. Write a fraction for the shaded part of the circle. _____

# Lesson 7

**Writing a Multiplication or Division Equation**

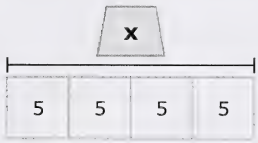


## Let's Explore

### Exploration 1: Division Equations

**Materials:** Pencil

1. Observe the following:




This picture models two equations.

$\frac{x}{4} = 5$ or $\frac{x}{5} = 5$

2. Write two equations to represent the following model:

3. Create a model for $\frac{x}{6} = 2$.

4. Create a model for $\frac{x}{8} = 7$.

**For 5: Either record an oral description or write one in the space provided. If recording, follow the recording instructions found at the end of this Exploration.**

5. Reflect: Describe how you would find **x** using your models.

Recording instructions: Start your recording by saying: My name is _____ . This is Math 6, Unit 2, Lesson 7, Exploration 1.

Be sure to hand in your recording with your workbook.

## Let's Practice

**For 1 – 4: There are three shelves on the bookcase with the same number of books on each shelf. There are 15 books in all.**

1. Zach and Lian each write an equation for this situation. Who is correct?

2. Explain your answer to number 1.

3. Write the correct answer in one other way.

4. Write a situation to match the incorrect answer.

**For 5 – 16: Write an equation for the sentence.**

5. Twelve times a number is thirty-six.

6. A number divided by eight is ten.

7. The product of a number and three is fifty-four.

8. The quotient of a number and five is seventeen.

9. Eight times a number is sixty-four.

10. Fourteen times a number is forty-two.

11. Eleven equals a number divided by six.

12. Eighteen is the product of a number and six.

13. A number divided by seven is eight.

14. Eleven times a number is one hundred twenty-one.

15. Thirty is the quotient of a number and three.

16. Twelve is the product of two and a number.

**For 17 – 18: Write a sentence for each equation.**

17. $4m = 12$

18. $\frac{h}{5} = 6$

19. Alyssa and Daksha are planting tulip bulbs. The tulip bulbs for the community centre flower beds cost $150.00. The bulbs come in bags of 6 and cost $7.50 per bag. Write an equation to find the number of bags they bought.

20. Mr. Davies commutes 2.5 hours to the city and home each day. Last month he commuted for 42.5 hours. Write an equation to find the number of days he commuted to the city last month.

21. Last week Mrs. Sharma worked 42 hours. She worked five days and the same number of hours each day. Write an equation to find the number of hours she worked each day.

22. Cameron bought some balloons for a party. There are twenty packages of balloons. There are 24 balloons in each package. Write an equation to find the number of balloons that Cameron bought.

23. Pedro bought 4 boxes of cereal for some amount. The cost per box was $3. Write a division equation to find the amount of money Pedro spent on his cereal.

24. Zach and Nina made a display in the school window. They cut a piece of ribbon into 42 equal pieces. Each new piece was 15 cm long. Write an equation for the original length of the ribbon.

25. Reflect: Write a situation for a division word problem and write the equation for the problem.

**For 1 – 5: Solve each equation and check.**

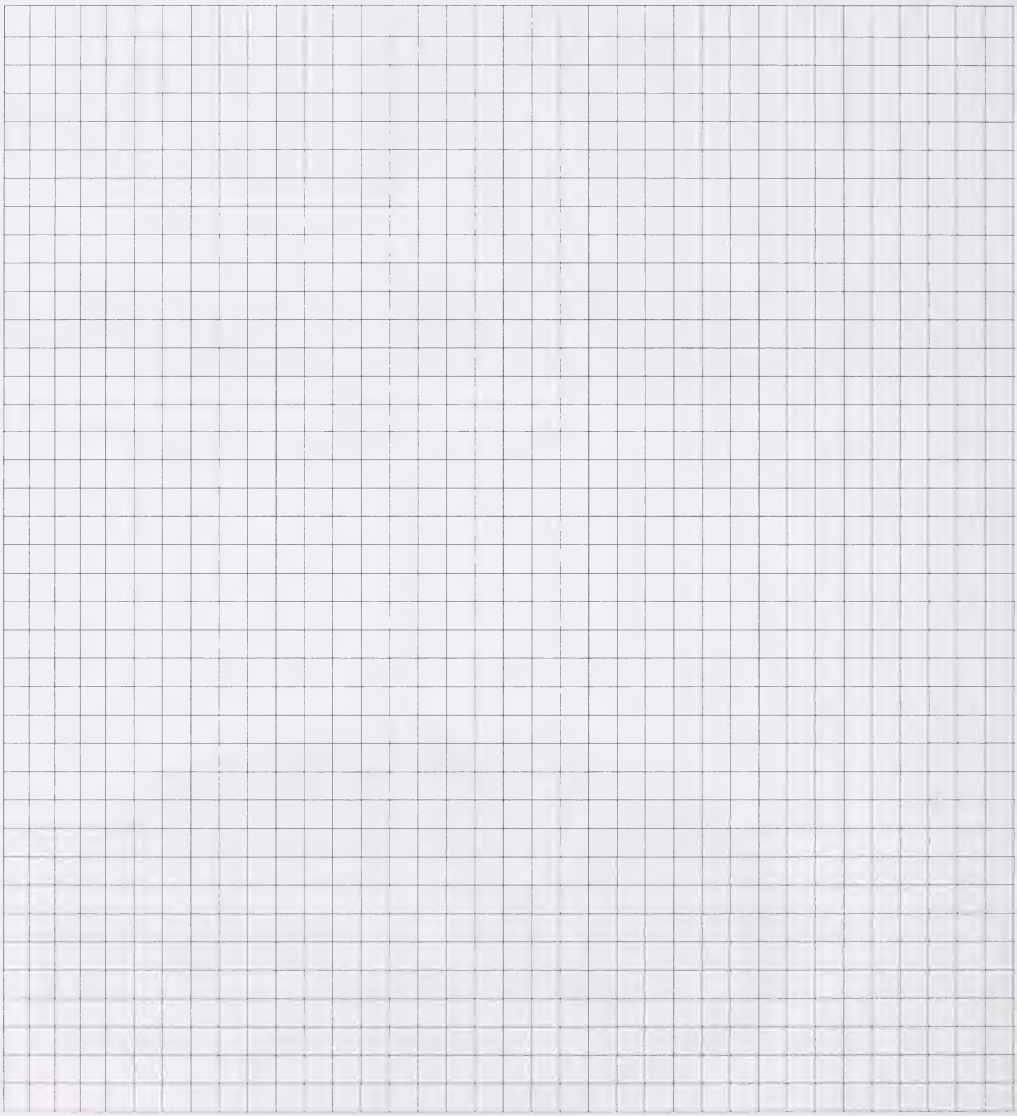
1. $k - 12 = 13$

2. $v - 7.1 = 12.4$

3. $5 = b - 2$

4. $72 = f - 65$

5. $2.8 = g - 3.9$



# Lesson 8

**Solving a Multiplication or Division Equation**

## Let's Explore

### Exploration 1: Solving Equations

**Materials:** Algebra Tiles from the back of this unit in your Workbook, Scissors, Pencil

1. Cut out the Algebra Tiles. Model $5x = 15$ using Algebra Tiles. Solve the equation.

2. What value does **x** represent in $5x = 15$?

3. Model $5x = 15$ and multiply each side by 2.

4. What value does **x** represent?

5. Complete: If you multiply both sides of an equation by the same number, the value of the _____ remains the same.

6. Model $\frac{x}{3} = 6$. Draw a picture and solve the equation.

7. Create a model of a division equation. Write the equation and draw the model.

8. Complete: When solving a division equation, you _____ both sides of the equation by the same number.

# Lesson 8: Solving a Multiplication or Division Equation

## Let's Practice

1. In $3x = 15$, what does **x** represent?

2. Multiply both sides of $3x = 15$ by 2. What value does **x** represent?

3. Write $5n = 35$ in one other way.

4. Write $\frac{n}{5} = 8$ in one other way.

5. Describe how you would solve a multiplication equation.

6. Describe how you would solve a division equation.

**For 7 – 22: Solve the equation. Check your answer.**

7. $8m = 56$

8. $15g = 270$

9. $\frac{c}{12} = 15$

10. $\frac{b}{3} = 102$

11. $14x = 126$

12. $8y = 72$

13. $9n = 108$

14. $y \div 18 = 45$

15. $8r = 104$

16. $\frac{g}{8.2} = 2.4$

17. $4v = 12.8$

18. $\frac{w}{124} = 12$

19. $x \div 19 = 5$

20. $26z = 364$

21. $\frac{f}{3.72} = 8$

22. $\frac{p}{25} = 50$

23. Write a multiplication equation that has a solution of 6. Explain how you wrote the equation.

24. Write a division equation that has a solution of 24. Explain how you wrote the equation.

**For 1 – 5: Subtract.**

1. 5.738 – 2.517

2. 8.309 – 4.217

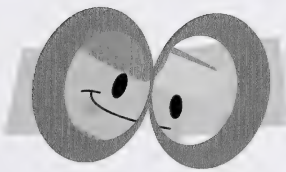
3. 24.75 – 4.507

4. 82.4 – 17.36

5. 12.839 – 8.7

# Lesson 9

**Writing Equations for a Table of Values**



## Let's Explore

### Exploration 1: Describe the Change

**Materials:** Pencil

1. Perform the following operations.

| | | | |
|---|---|---|---|
| 3 + 5 = ___ | 16 + 5 = ___ | 20 + 5 = ___ | 32 + 5 = ___ |
| 40 + 5 = ___ | 51 + 5 = ___ | 63 + 5 = ___ | 68 + 5 = ___ |

2. Does adding a counting number increase or decrease the value of the first number?

3. Perform the following operations.

| | | | |
|---|---|---|---|
| 20 – 8 = ___ | 24 – 8 = ___ | 35 – 8 = ___ | 37 – 8 = ___ |
| 49 – 8 = ___ | 58 – 8 = ___ | 64 – 8 = ___ | 72 – 8 = ___ |

4. Does subtracting a counting number increase or decrease the value of the first number?

5. Perform the following operations.

| | | | |
|---|---|---|---|
| $4 \bullet 3 =$ ___ | $7 \bullet 3 =$ ___ | $9 \bullet 3 =$ ___ | $12 \bullet 3 =$ ___ |
| $15 \bullet 3 =$ ___ | $19 \bullet 3 =$ ___ | $23 \bullet 3 =$ ___ | $27 \bullet 3 =$ ___ |

6. Does multiplying by a counting number increase or decrease the value of the first number?

7. Perform the following operations.

| | | | |
|---|---|---|---|
| $24 \div 2 =$ ___ | $34 \div 2 =$ ___ | $42 \div 2 =$ ___ | $68 \div 2 =$ ___ |
| $86 \div 2 =$ ___ | $94 \div 2 =$ ___ | $98 \div 2 =$ ___ | $102 \div 2 =$ ___ |

8. Does dividing by a counting number increase or decrease the value of the first number?

9. Record your observations about operations with whole numbers:

| Addition of a whole number: | Subtraction of a whole number: |
|---|---|
| | |
| **Multiplication by a whole number:** | **Division by a whole number:** |
| | |

## Let's Practice

**For 1 – 6: Use the rule to find the missing values in the table.**

1.

| m | 3m |
|---|---|
| 3 | |
| 7 | |
| 8 | |
| 10 | |
| 14 | |

2.

| k | k - 8 |
|---|---|
| 12 | |
| 18 | |
| 20 | |
| 26 | |
| 32 | |

3.

| g | g + 18 |
|---|---|
| 10 | |
| 14 | |
| 15 | |
| 19 | |
| 25 | |

4.

| b | b ÷ 3 |
|---|---|
| 27 | |
| 54 | |
| 81 | |
| 96 | |
| 105 | |

5.

| x | x - 11 |
|---|---|
| 18 | |
| 27 | |
| 34 | |
| 52 | |
| 60 | |

6.

| a | 8a |
|---|---|
| 0 | |
| 4 | |
| 8 | |
| 12 | |
| 16 | |

**For 7 – 15: Write a rule for the second column of the table in symbols and in words.**

7.

| n | ☐ |
|---|---|
| 0 | 0 |
| 3 | 21 |
| 7 | 49 |
| 12 | 84 |

8.

| b | ☐ |
|---|---|
| 17 | 7 |
| 23 | 13 |
| 29 | 19 |
| 45 | 35 |
| 62 | 52 |

9.

| a | □ |
|---|---|
| 18 | 6 |
| 27 | 9 |
| 39 | 13 |
| 45 | 15 |
| 60 | 20 |

10.

| c | □ |
|---|---|
| 10 | 28 |
| 12 | 30 |
| 14 | 32 |
| 16 | 34 |
| 18 | 36 |

11.

| x | □ |
|---|---|
| 14 | 10 |
| 23 | 19 |
| 31 | 27 |
| 45 | 41 |
| 57 | 53 |

12.

| d | □ |
|---|---|
| 12 | 6 |
| 17 | 11 |
| 23 | 17 |
| 34 | 28 |
| 48 | 42 |

13.

| y | □ |
|---|---|
| 2 | 8 |
| 12 | 48 |
| 22 | 88 |
| 32 | 128 |
| 42 | 168 |

14.

| t | □ |
|---|---|
| 17 | 22 |
| 19 | 24 |
| 23 | 28 |
| 29 | 34 |
| 37 | 42 |

15.

| g | □ |
|---|---|
| 7 | 56 |
| 8 | 64 |
| 9 | 72 |
| 10 | 80 |
| 11 | 88 |

**For 16 – 19: Solve each problem using a table of values. Draw your table and write the answer.**

16. Mrs. Patel's car has 110 000 km on it. The estimated value of her car is $10 000. The estimated value of the car when it has 120 000 km is $8 000. The estimated value will be $6 000 when the distance travelled is 130 000 km. What will the estimated value of the car be when the distance travelled is 150 000 km?

17. Nina has grown 5 centimetres each year for the last two years. She is now 11 years old and 145 cm tall. How tall will Nina be when she is 13 if this pattern continues?

18. The Winter Sports Shoppe has seen a steady increase in the sales of snowboards over the last three years. They sold 120 snowboards the first year, 280 the second year, and 440 this year. If the pattern continues, how many snowboards might they sell in the sixth year?

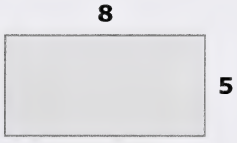
19. Mr. Lin is taking golf lessons. He took two more lessons than the last month for the past three months. He took 5 lessons in the third month. If he continues this pattern, how many lessons might he take in month 8?

20. Reflect: Describe how you can use patterns to solve problems.

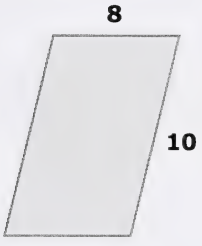
## Mixed Review

**For 1 – 5: Find the perimeter of the parallelograms.**

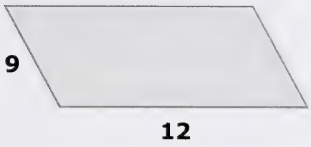
1.



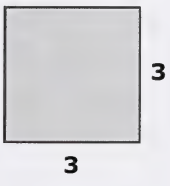

2.



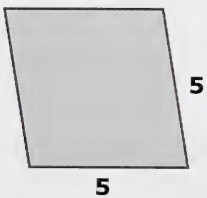

3.

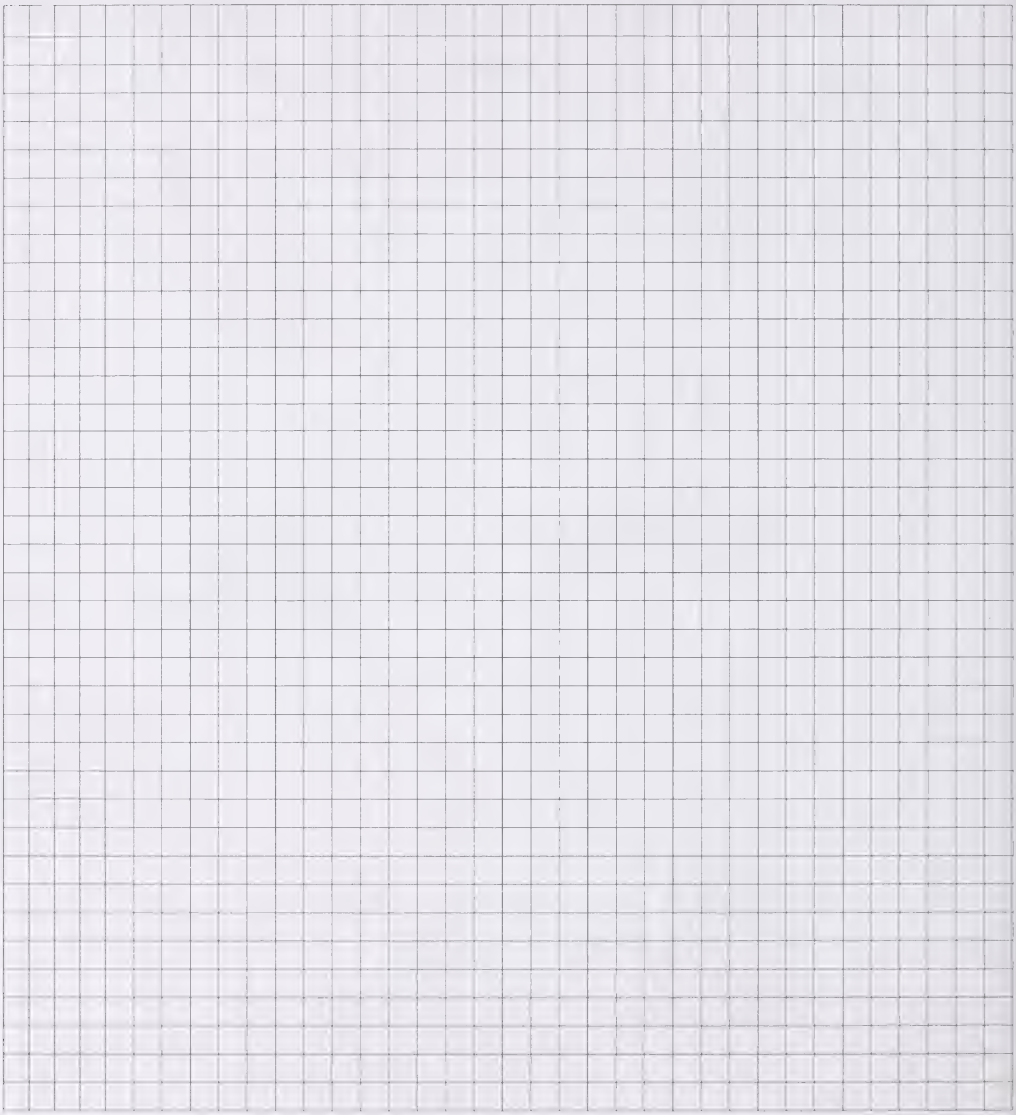



4.




5.





# Lesson 10

## Graphing Points on the Coordinate Plane

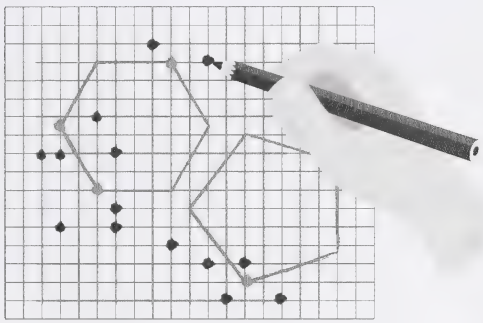
### Let's Explore

**Exploration 1: Hit or Miss**

**Materials:** Coordinate Plane from the back of this unit in your Workbook, 2 Pencil Crayons, Partner

**Choose a partner. You will play a game using the coordinate plane in your Workbook. You will each need one coordinate plane.**

1. Player A draws a pentagon and a hexagon on the coordinate plane. These shapes do not need to have sides of the same length.
2. Player B names an ordered pair on the coordinate plane.
3. Player A says "Hit" if the point is a vertex of one of the shapes. If it is not, then say "Miss".



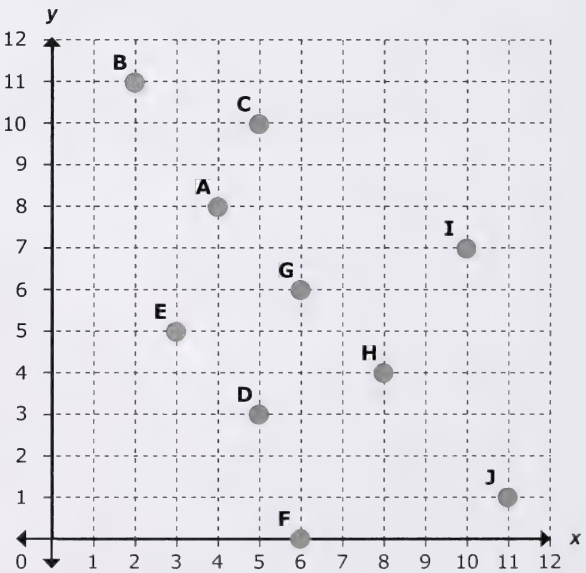
4. Player B marks the point with one colour for a hit and a different colour for a miss.
5. Count the number of guesses Player B needs to find all vertices of both shapes.
6. Continue play by switching roles. The winner is the player that names all of the points of the figures with the smallest number of guesses.

## Let's Practice

1. Reflect: Describe how to graph a point on a coordinate plane.

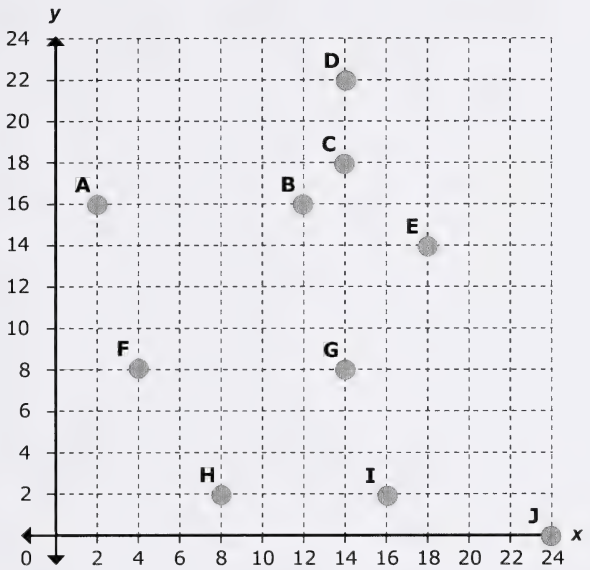
**For 2 – 11: Write the letter for each ordered pair.**

2. (2, 11) _____
3. (8, 4) _____
4. (5, 3) _____
5. (4, 8) _____
6. (6, 0) _____
7. (3, 5) _____
8. (5, 10) _____
9. (10, 7) _____
10. (6, 6) _____
11. (11, 1) _____



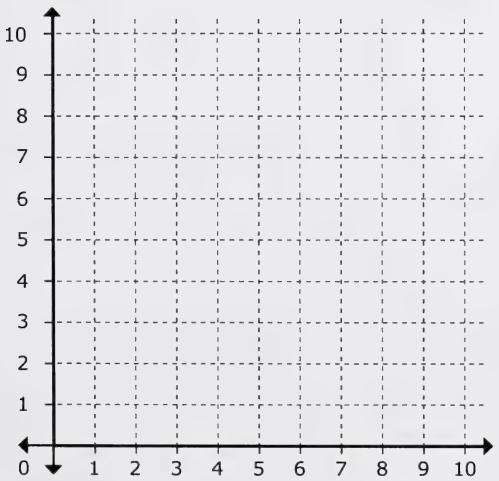
**For 12 – 21: Write the ordered pair for the points on the given coordinate plane.**

12. A _____
13. B _____
14. C _____
15. D _____
16. E _____
17. F _____
18. G _____
19. H _____
20. I _____
21. J _____

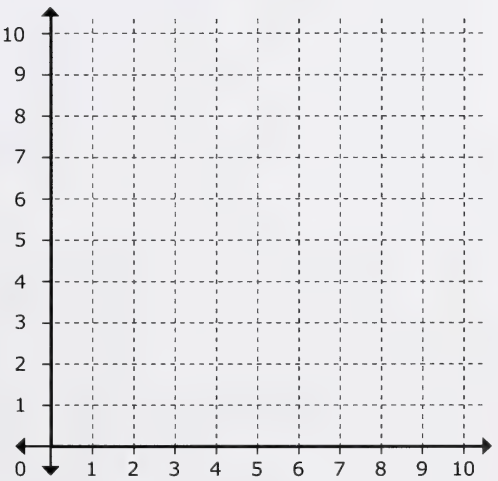



**For 22 – 31: Graph the ordered pair on the given coordinate plane. Label the axes if they are not already labelled.**

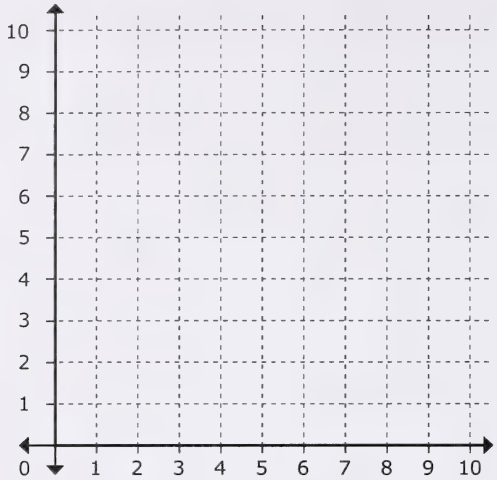
22. (4, 7)



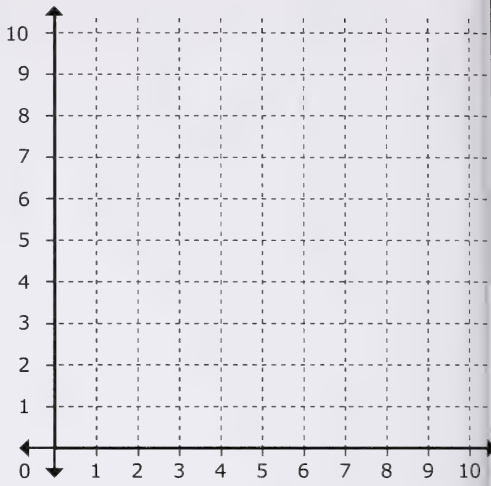
23. (1, 3)



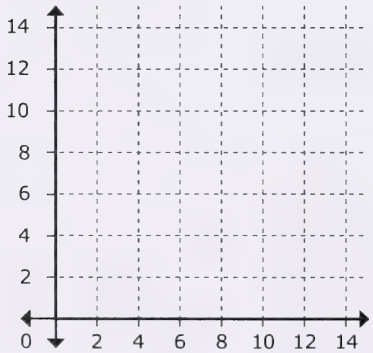
24. (7, 0)



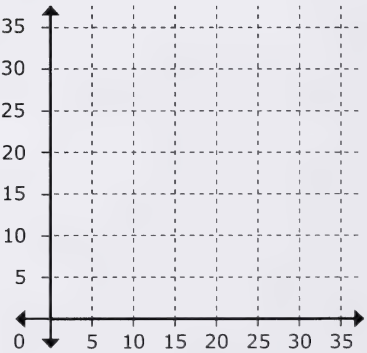

25. (5, 2)



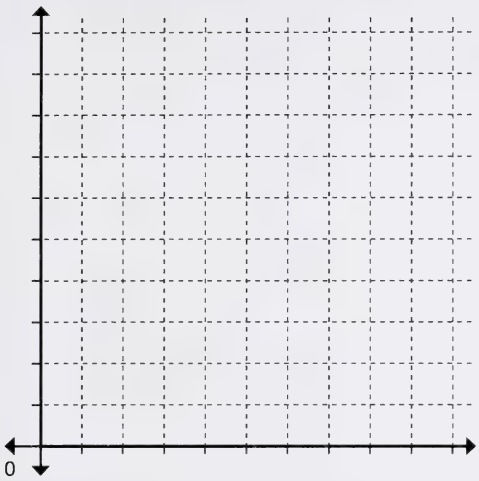

26. (12, 10)



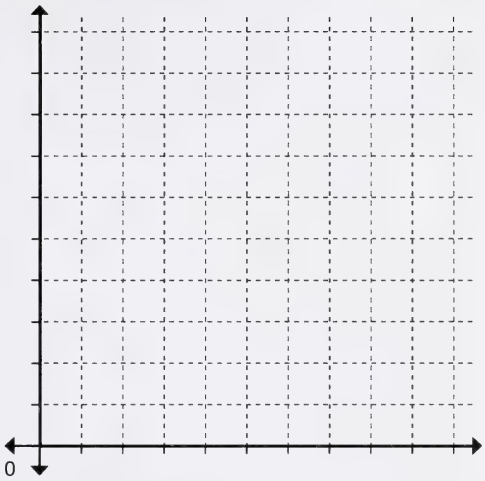

27. (15, 25)



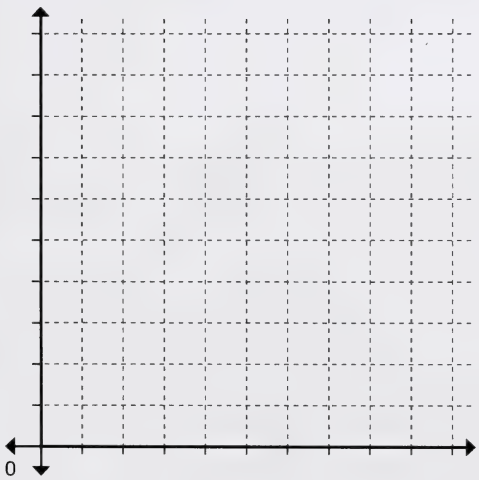
28. (25, 40)



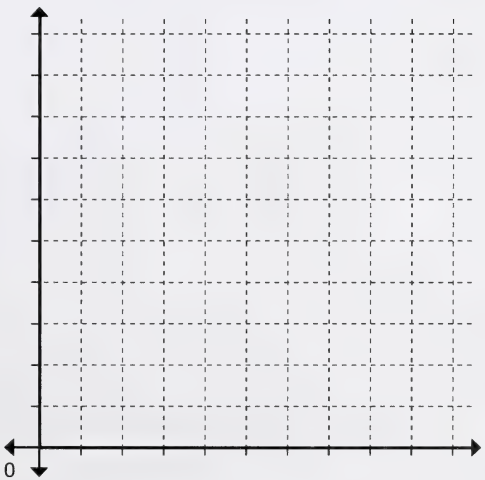

29. (50, 80)




30. (14, 13)

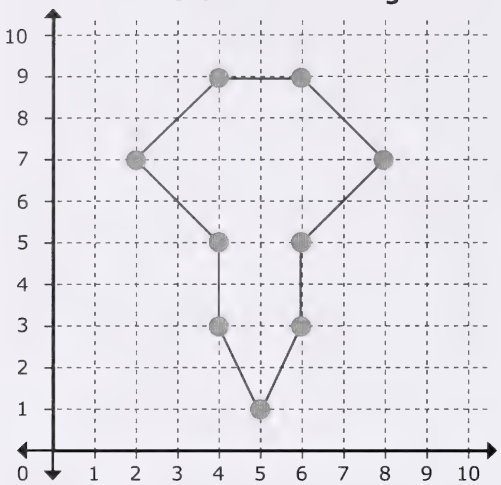



31. (10, 25)

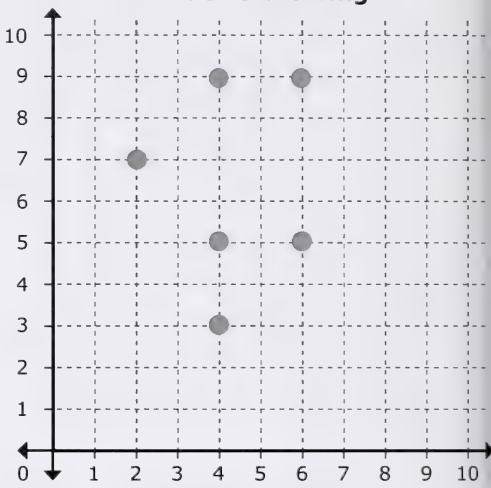


32. Mrs. Jones made this completed drawing on a coordinate plane. She asked the class to draw the figure on their own coordinate planes. Zach has graphed most of the ordered pairs needed to complete the drawing. What are the ordered pairs that he still needs to plot?

**Mrs. Jones' Drawing**



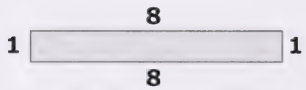

**Zach's Drawing**




## Mixed Review

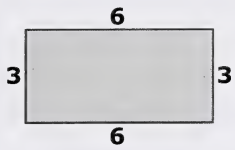
**For 1 – 5: Find the area of each rectangle.**

1.

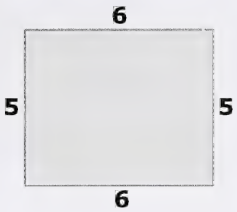



2.

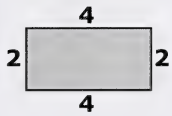
3.

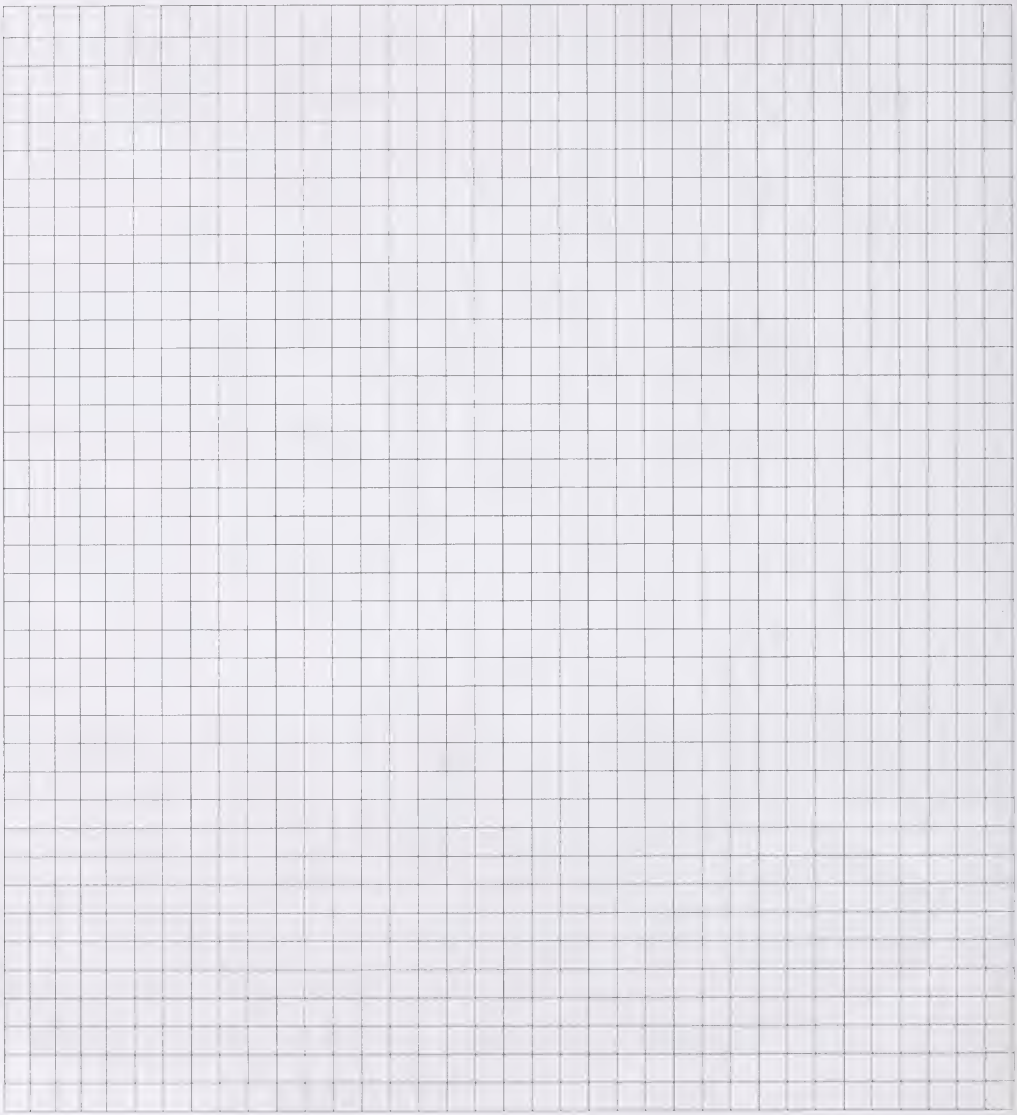



4.



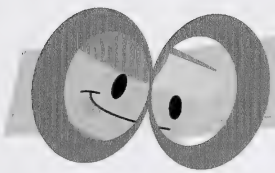

5.





# Lesson 11

**Graphing Patterns**



## Let's Explore

### Exploration 1: Making a Line Graph

**Materials:** Clock, Pencil

**Record for one week the amount of time, in hours, that you sleep. Measure the time as closely as you can to a quarter of an hour and record the time in hours and quarter hours:**

Examples: 1 hour 15 min = 1.25 hr

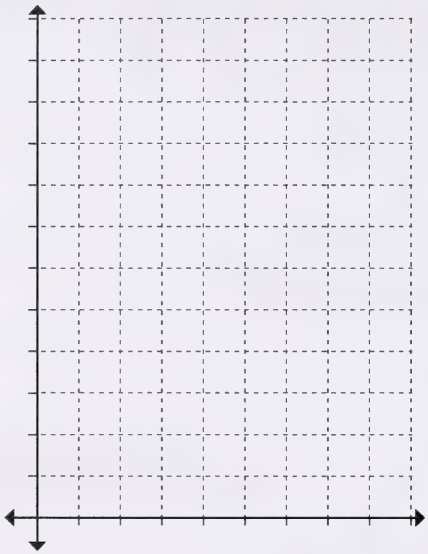
1 hour 30 min = 1.5 hr

1 hour 45 min = 1.75 hr

| Day | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hours of Sleep | | | | | | | |

**Create a line graph using your data. Make sure you include the following elements on your graph:**

1. Axes labels with the appropriate units
2. Axes names with a description of the data
3. A title for the graph



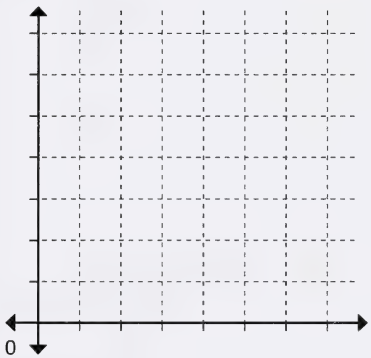
# Lesson 11: Graphing Patterns

## Let's Practice

**For 1 – 6: Create a graph for each table of values.**

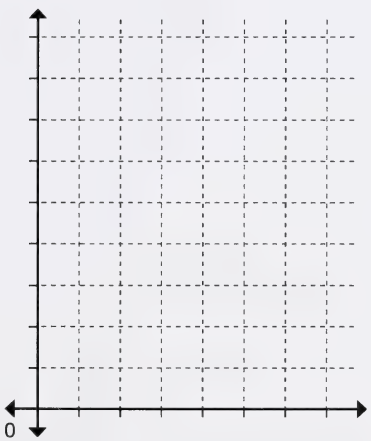
1.

| x | y |
|---|---|
| 1 | 5 |
| 2 | 10 |
| 3 | 15 |
| 4 | 20 |
| 5 | 25 |
| 6 | 30 |



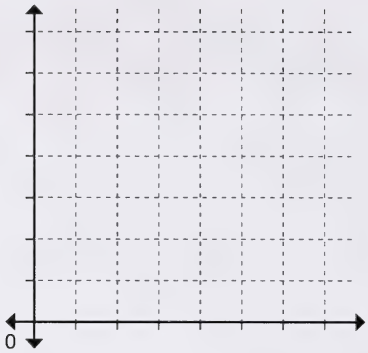

2.

| x | y |
|---|---|
| 2 | 6 |
| 4 | 8 |
| 6 | 10 |
| 8 | 12 |
| 10 | 14 |
| 12 | 16 |



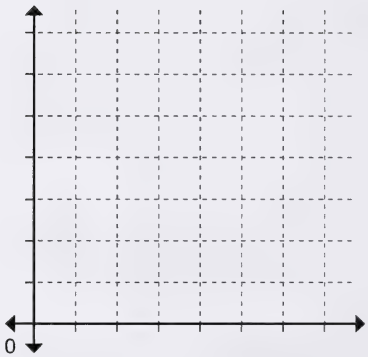
3.

| x | y |
|---|---|
| 1 | 3 |
| 3 | 5 |
| 4 | 6 |
| 6 | 8 |
| 7 | 9 |
| 9 | 11 |



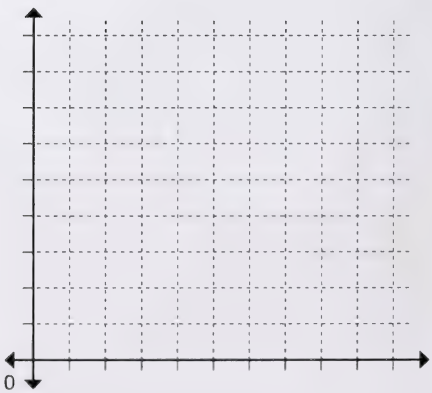

4.

| x | y |
|---|---|
| 1 | 12 |
| 2 | 10 |
| 3 | 7 |
| 4 | 5 |
| 5 | 2 |
| 6 | 0 |



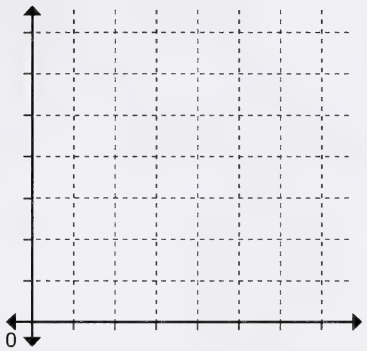

5.

| x | y |
|---|---|
| 1 | 1 |
| 2 | 4 |
| 3 | 7 |
| 4 | 10 |
| 5 | 13 |
| 6 | 16 |



6.

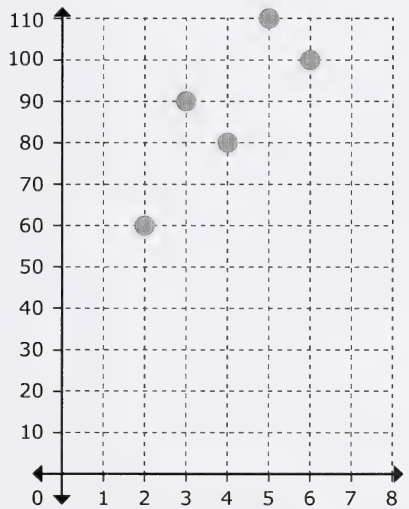
| x | y |
|---|---|
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |
| 5 | 25 |
| 6 | 36 |




**For 7 – 10: Create a table of values for the given graphs.**

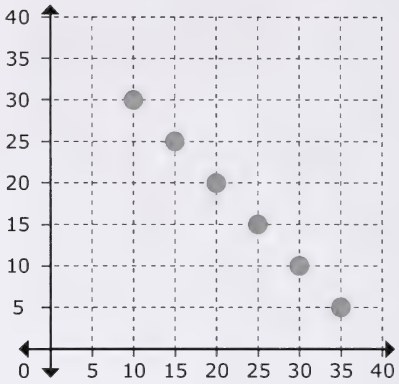
7.

| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |



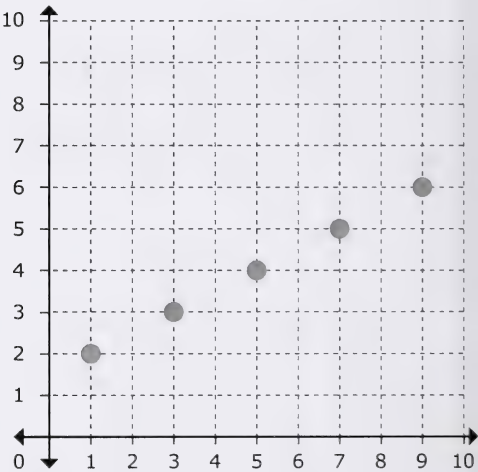
8.

| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |


40
35
30
25
20
15
10
5
0
5
10
15
20
25
30
35
40

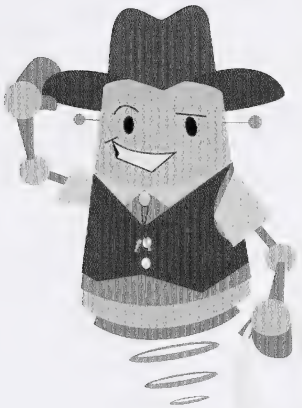
9.

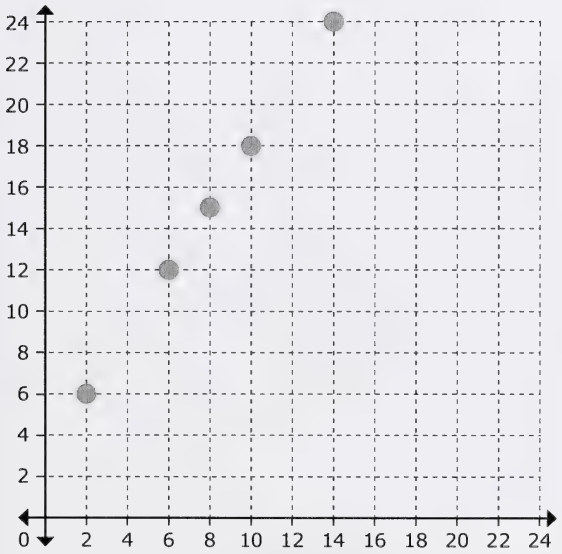
| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |


10
9
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
7
8
9
10

10.

| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |

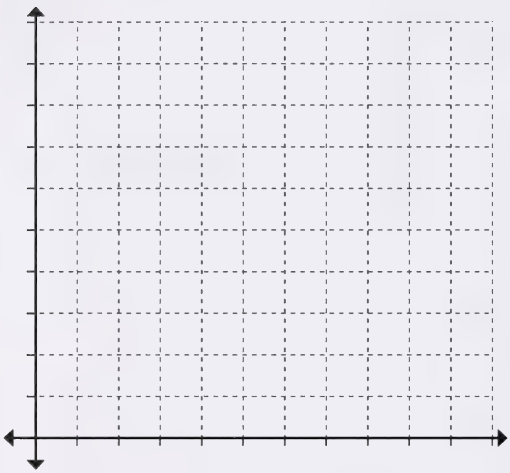




**For 11 – 14: Create a line graph for the following sets of data.**

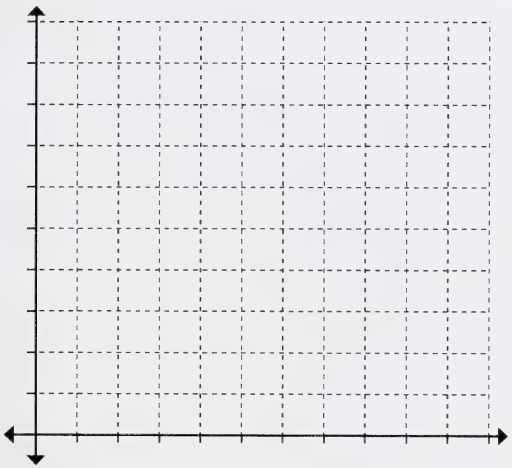
11. Cameron is practicing for a swim meet.

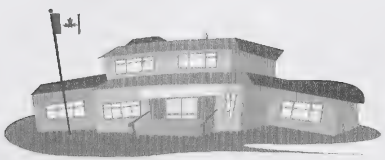
| **Day** | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| **Number of Laps** | 1 | 3 | 7 | 15 | 31 |

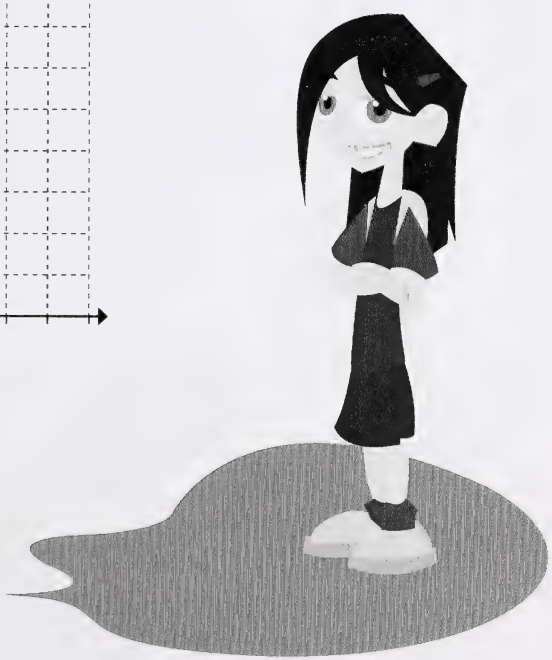


12. Nina's mom is tracking the amount of time it takes Nina to get ready for school each day.

| Day | Time (Minutes) |
|---|---|
| Monday | 15 |
| Tuesday | 35 |
| Wednesday | 30 |
| Thursday | 26 |
| Friday | 25 |

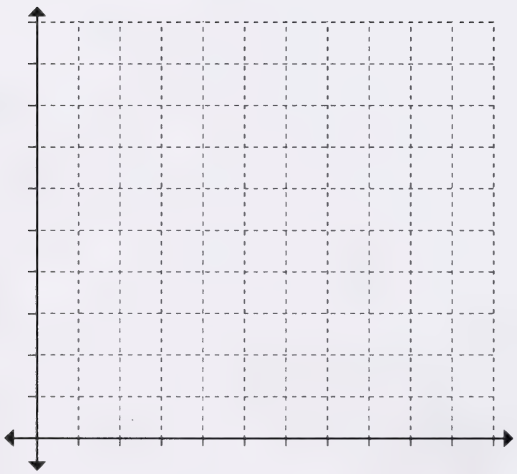


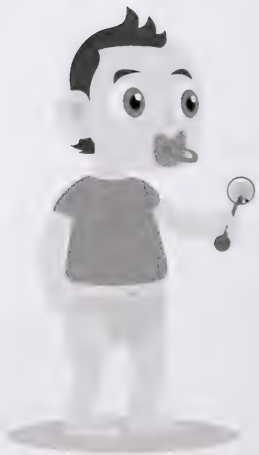




13. The birth rates of Alberta, CA are given in the table.

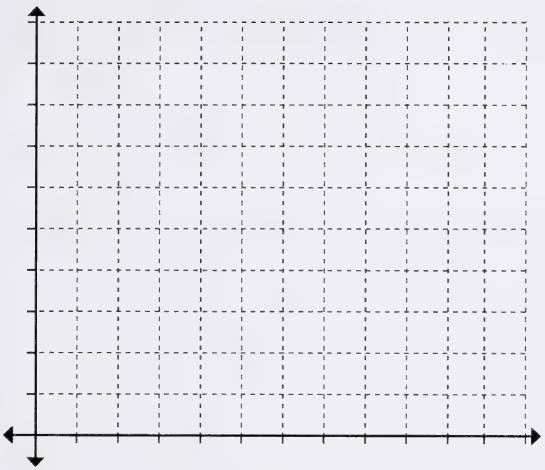
| Year | Estimated Number of Births (Thousands) |
|---|---|
| 2004 | 41 |
| 2005 | 41 |
| 2006 | 43 |
| 2007 | 46 |
| 2008 | 48 |





14. Alyssa's allowance has changed over the past six years.

| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Allowance (in Dollars) | 8 | 10 | 10 | 12 | 14 | 15 |

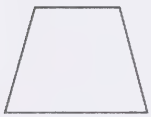


## Mixed Review

**For 1 – 5: Draw all possible lines of symmetry on the given geometric figures.**

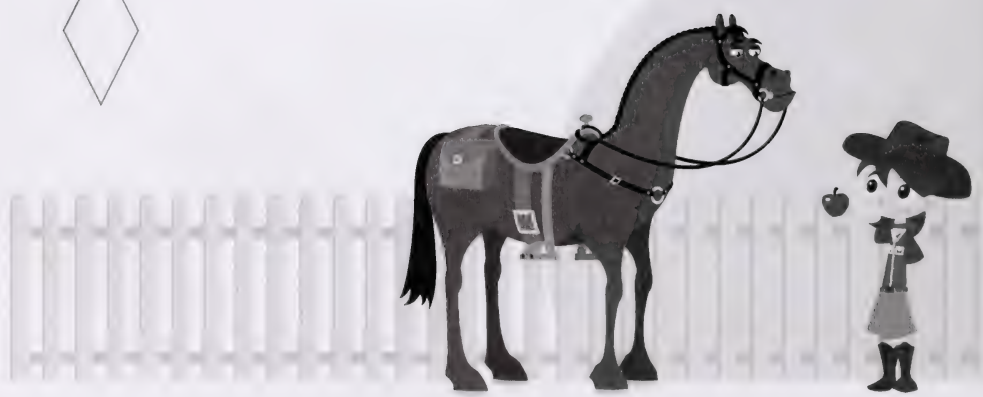
1.

2.

3. 

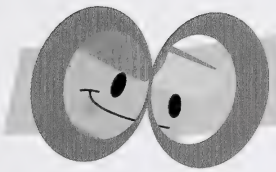
4.

5.



# Lesson 12

**Measuring Figures on a Coordinate Plane**

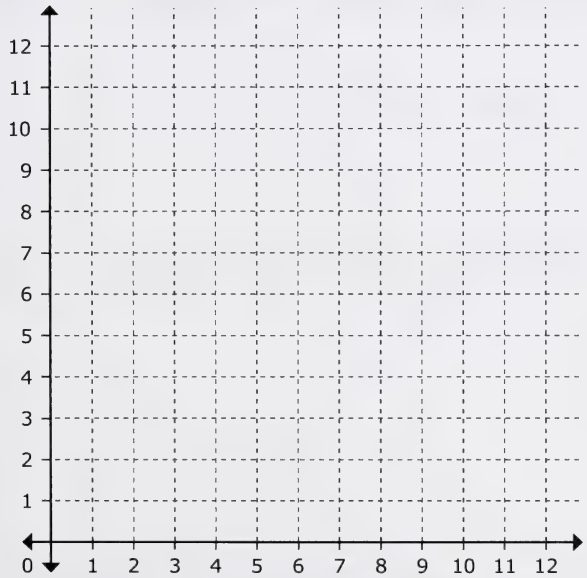


## Let's Explore

### Exploration 1: Pictures on a Coordinate Plane

**Materials:** Pencil

1. Create your own drawing on the coordinate plane.

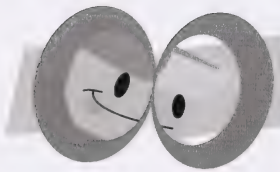



2. Put points around the perimeter of your figure.

3. List all of the ordered pairs that make the figure.

Hint: Be sure to write "start" and "stop" if there are places where the pencil must be lifted.

4. Have a friend make the figure using only the directions you have written with ordered pairs.



## Let's Explore

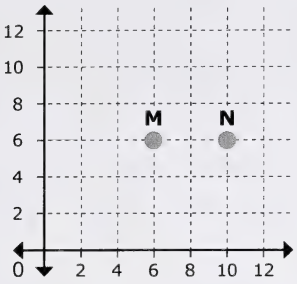
### Exploration 2: Finding the Distance

**Materials:** Pencil

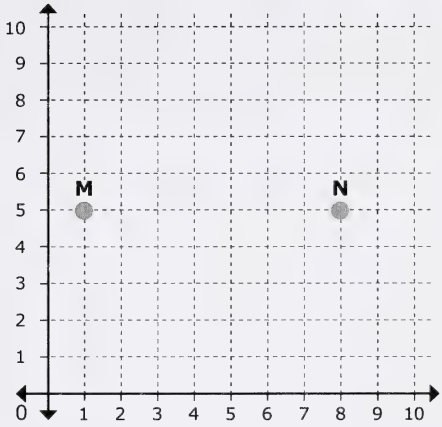
**Horizontal distance:**

1. List the ordered pair for each point in the table provided.
2. Find the distance between each pair of points on the coordinate plane.

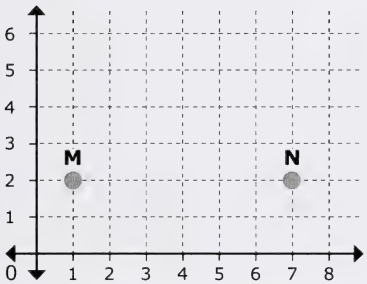
A.



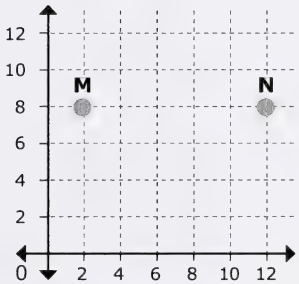

B.




C.




D.




| Figure | Point M | Point N | Distance from M to N (in units) |
|---|---|---|---|
| A | | | |
| B | | | |
| C | | | |
| D | | | |

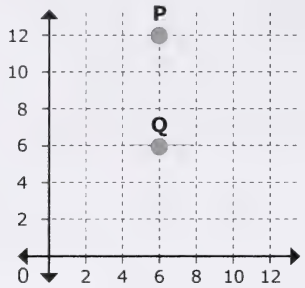
3. Use the table to write a prediction of how to find the distance between points horizontally using only ordered pairs.

**Vertical distance:**

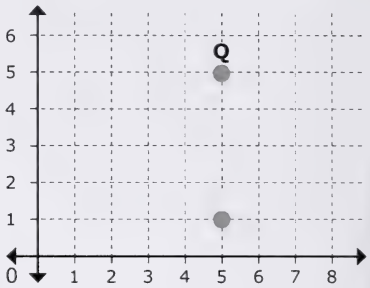
4. List the ordered pair for each point in the table provided.

5. Find the distance between each pair of points on the coordinate plane.

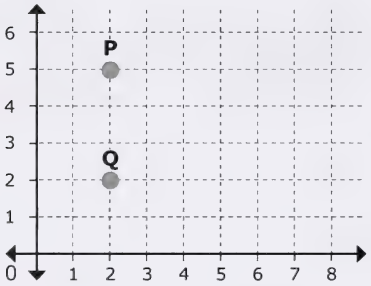
E.



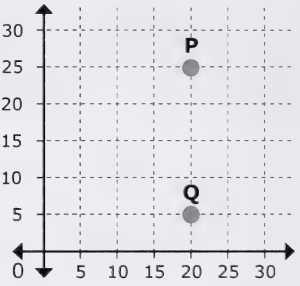

F.




G.




H.



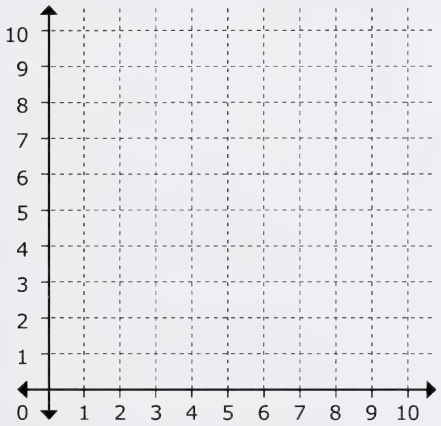

| Figure | Point P | Point Q | Distance from P to Q (in units) |
|---|---|---|---|
| E | | | |
| F | | | |
| G | | | |
| H | | | |

6. Use the table to write a prediction of how to find the distance between points vertically using only ordered pairs.

## Let's Practice

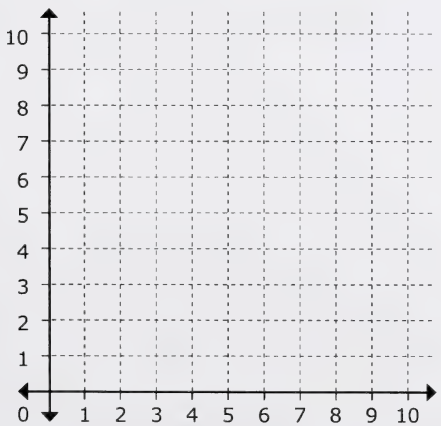
**For 1 – 3: Graph the points in the given order and connect the dots. What is the shape of your picture?**

1. Start: (0, 2), (3, 8), (7, 8), (10, 2), (0, 2) Stop



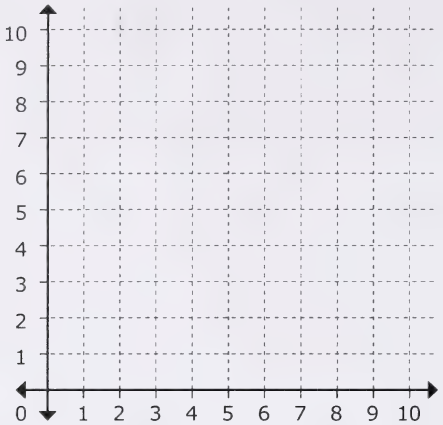

Shape:_____

2. Start: (1, 7), (4, 10), (10, 7), (4, 4), (1, 7) Stop




Shape:_____

3. Start: (2, 5), (4, 5), (5, 7), (4, 9), (2, 9), (1, 7), (2, 5) Stop



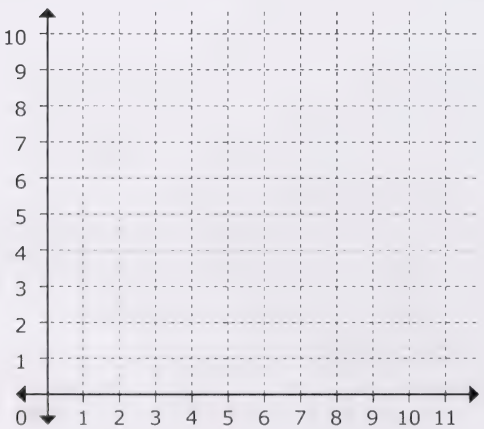

Shape:_____

**For 4 – 5: Graph the points and draw a line segment between each pair of consecutive points to complete a picture.**

4. Start: (6, 2), (4, $2\frac{1}{2}$), (3, 3), (2, 3), ($1\frac{1}{2}$, 4), (2, 5), (3, 7), ($2\frac{1}{2}$, 8), ($2\frac{1}{2}$, 9), (3, 10), (4, 9), (5, 9), ($5\frac{1}{2}$ , $9\frac{1}{2}$), (6, 9), (7, $9\frac{1}{2}$), (7, 9), (8, 9), (9, 10), ($9\frac{1}{2}$, 9), ($9\frac{1}{2}$, 8), (9, 7), (10, 5), ($10\frac{1}{2}$, 4), (10, 3), (9, 3), (8, $2\frac{1}{2}$), (6, 2) Stop

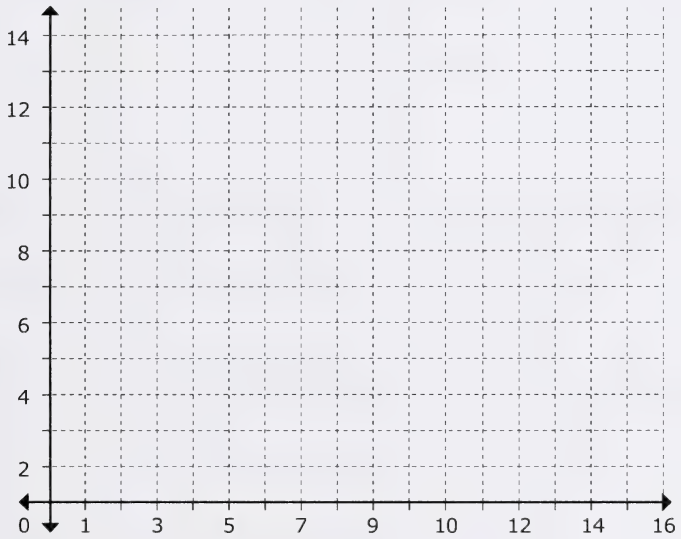
   Start: (8, $4\frac{1}{2}$), (7, 4), (6, 4), (5, 4), (4, $4\frac{1}{2}$) Stop

   Start: (6, 5), (6, 4) Stop; Start: (5, 7) Stop; Start: (7, 7) Stop



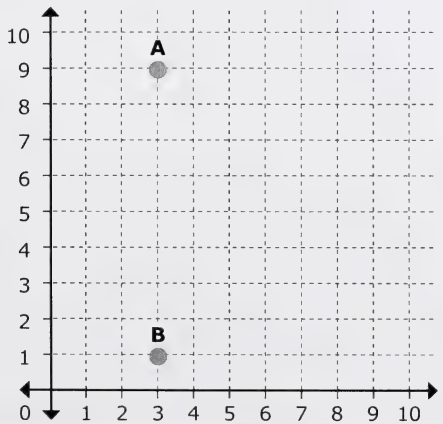

Shape:_____

5. Start: (7, 8), (4, $7\frac{1}{2}$), (3, 9), (4, 10), (6, 10), (7, $9\frac{1}{2}$), (6, 11), (6, 12), (7, 13), (8, 13), (9, 12), (9, $10\frac{1}{2}$), (10, $12\frac{1}{2}$), (11, $13\frac{1}{2}$), (12, 14), (13, 13), ($12\frac{1}{2}$, 12), (12, 11), (11, 10), (12, 10), (13, 10), (14, 9), ($13\frac{1}{2}$, 8), (11, 8), (13, 7), ($13\frac{1}{2}$, 6), (13, 5), (12, $4\frac{1}{2}$), (11, 5), (10, 6), (10, 4), (9, 3), (8, 3), ($7\frac{1}{2}$, 4), (8, 6), (7, 5), (5, $4\frac{1}{2}$), (4, 5), (4, 6), (5, 7), (7, 8) Stop

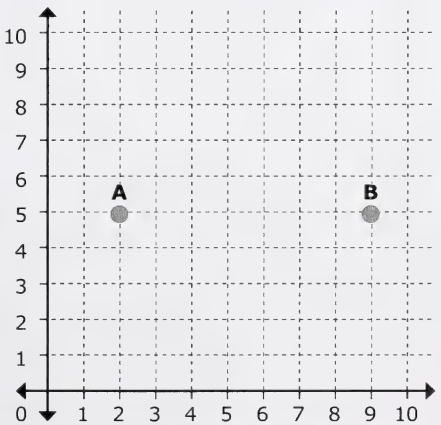



**For 6 – 9: Find the distance from Point A to Point B.**

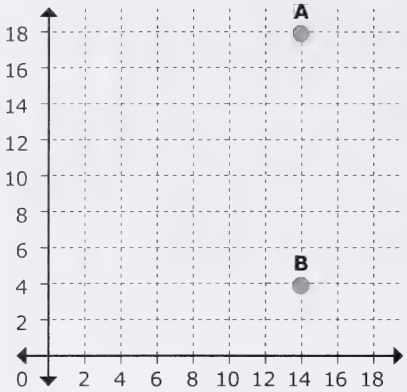
6.



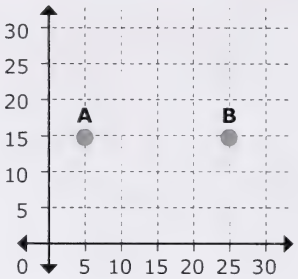

7.



8.




9.




**For 10 – 14: Find the distance from Point A to Point B. If you need to, you can use the grids found after number 14.**

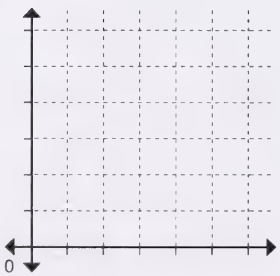
10. A (12, 16), B (12, 3)

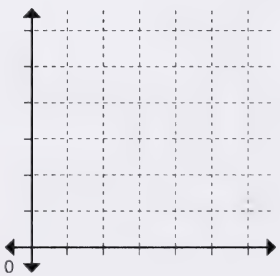
11. A (2, 8), B (10, 8)

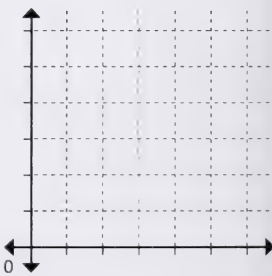
12. A (4, 15), B (4, 0)

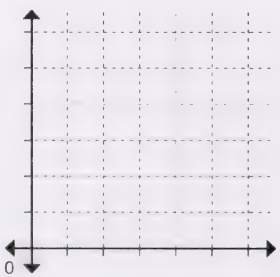
13. A (12, 0), B (12, 28)

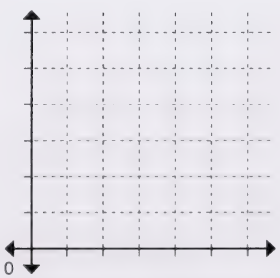
14. A (20, 25), B (5, 25)



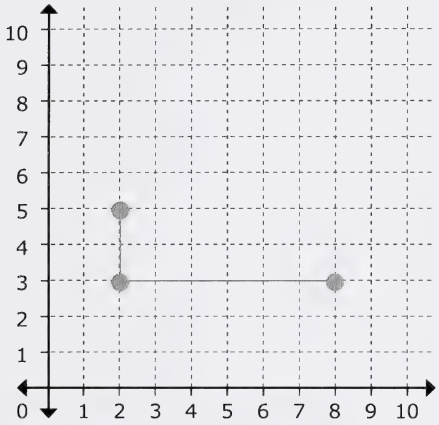



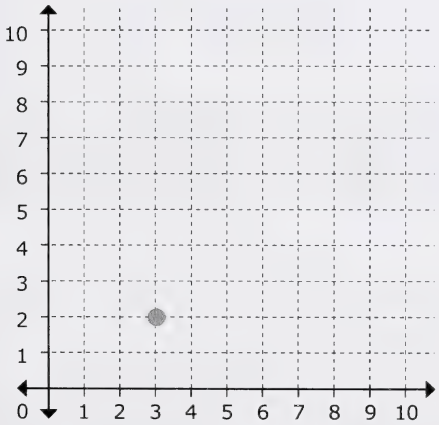



**For 15 – 17: Create the geometric shape described.**

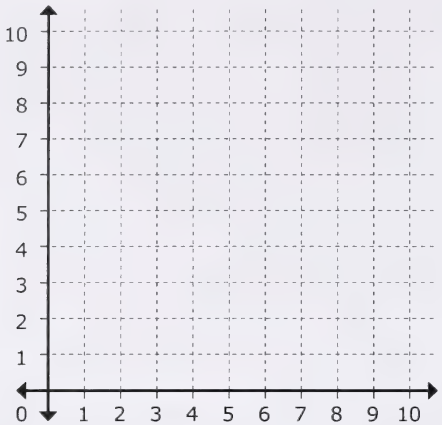
15. Draw and label the point needed to complete a rectangle from the given vertices.




16. Cameron wants to draw a square with a perimeter of 20 on the given coordinate plane. Draw and label the next three points of his square.



17. Create a rectangle with a perimeter of 36 units. Label all vertices.




18. Reflect: What are some geometric shapes that have only horizontal and vertical lines when positioned on a coordinate plane?

## Mixed Review

1. Are the two decimals equivalent? Write equivalent or not equivalent.
   .021 and 0.21 _____

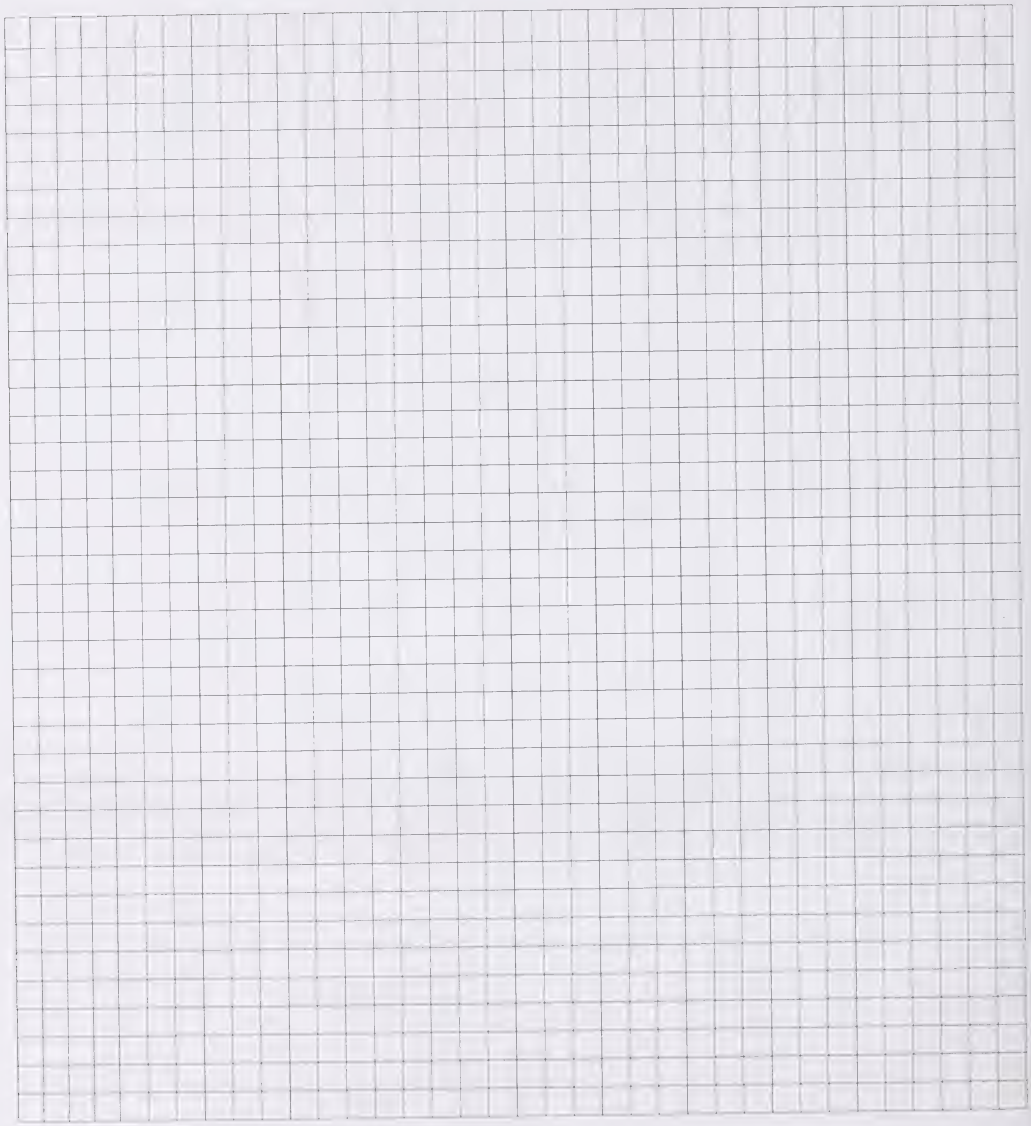
2. Write two equivalent decimals for 0.3. _____

**For 3 - 4: Compare using <, >, or =.**

3. 0.05 _____ 0.15

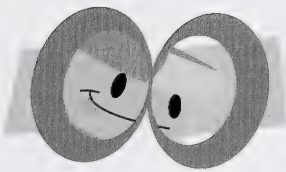
4. 0.4 _____ 0.405

5. Order the given decimals from least to greatest: 0.89, 0.90, 0.98, 0.8



# Lesson 13

**Collecting Data**



## Let's Explore

### Exploration 1: Researching Surveys

**Materials:** Internet or Magazines or Newspapers, Pencil

1. Use the Internet, Magazines, or Newspapers to search for popular surveys.
2. Print or cut out one survey and paste it here.

3. What question does the information in the survey answer?

4. Describe the population that the survey represents.

5. How many people were surveyed?

6. Repeat for three more surveys.

   a. Survey question: _____

   b. Population description: _____

   c. Number of people surveyed: _____

a. Survey question: _____

b. Population description: _____

c. Number of people surveyed: _____

a. Survey question: _____

b. Population description: _____

c. Number of people surveyed: _____

7. Reflect: Are the surveys you found representative of the populations they address?

8. Reflect: Were the surveys given to a good sample? Why or why not?

## Let's Practice

**For 1 – 5: Name a method for collecting data to answer the given question.**

1. What is your favourite type of fruit?

2. Are there any interesting differences in the amount of space given to different kinds of stories in your local newspapers?

3. What is your favourite pet?

4. What is the temperature on most Fridays in March?

5. Are men or women more likely to attend sporting events?

**For 6 – 10: Daksha wanted to know what types of fruit his friends and family like. He collected data through the use of a survey. Answer the questions that follow the data.**

6. Complete the frequency for each fruit.

| What is your favourite fruit? | | |
|---|---|---|
| **Fruit** | **Tally** | **Frequency** |
| Apples | \|\|\| | |
| Grapes | \|\|\|\| | |
| Bananas | 𝍸 \|\|\| | |
| Oranges | \|\|\| | |
| Raspberries | \|\| | |

7. How many people did Daksha survey?

8. How many categories did Daksha give them to choose from?

9. How many people voted for the most popular category?

10. How many more people voted for the most popular category than the least popular category?

11. A survey asking people to list their favourite colour is given to twenty people. Their choices are red, blue, yellow, green and purple. If a person chooses purple as their colour, can you be sure that their answer is true? Explain your answer.

12. Create a question that you can answer using a database. Research your question. List the source you used and the data you found to answer your question.

13. Create a question that you can answer using a survey. Select a sample for your population. Pose your question to your sample. Create a frequency table to organize your data.

**For 14 – 15: Nina asks 24 sixth graders: How many hours do you spend doing homework each week? Here are their responses:**

**4 5 8 10 7 6 2 7 11 9 6 8**

**3 14 10 10 6 8 9 13 8 7 12 4**

14. Record the number of responses for each range of hours.

| Range of hours | Tally | Frequency |
|---|---|---|
| 1 to 5 | | |
| 6 to 10 | | |
| 11 to 15 | | |

15. How would the data from this survey be different if it were given to twenty-four third graders? Why?

**For 1 – 5: List the factors of each number.**

1. 28

2. 105

3. 12

4. 72

5. 18

# Lesson 14

**Creating a Line Graph**

## Let's Explore

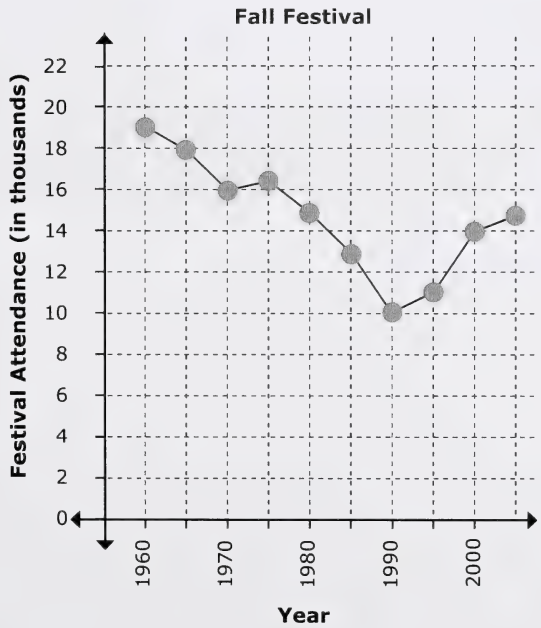
### Exploration 1: Line Graphs

**Materials:** Pencil

**Observe these line graphs. Identify the following parts for each graph:**

a. Title b. x-axis c. y-axis d. Intervals

1.



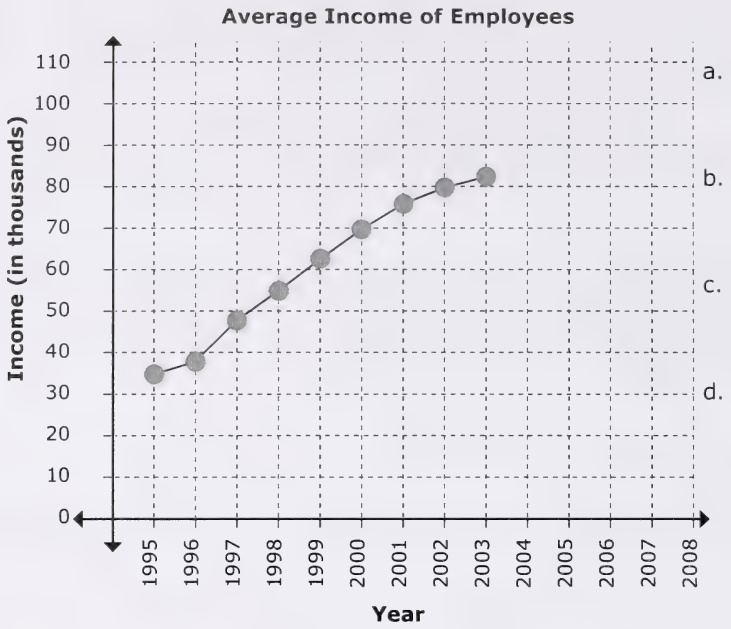

a.

b.

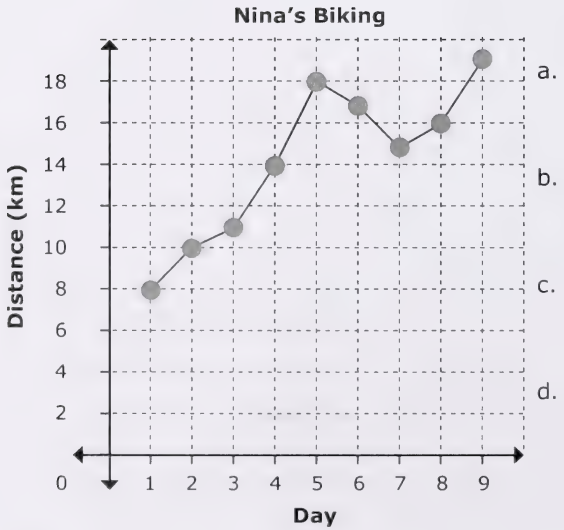
c.

d.

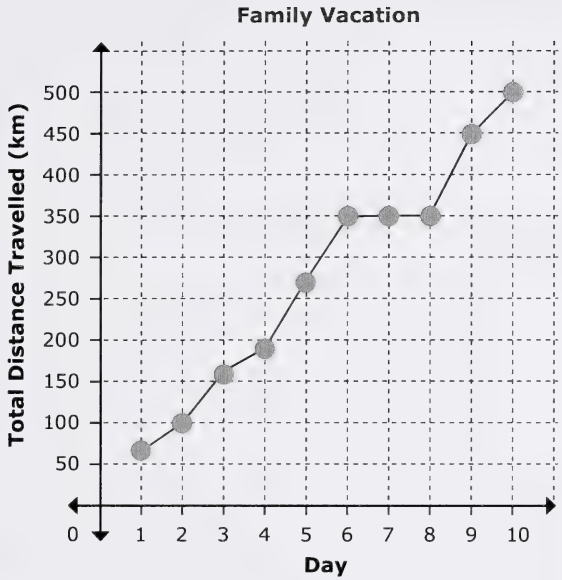
2.


Average Income of Employees
Income (in thousands)
110
100
90
80
70
60
50
40
30
20
10
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
Year
a.
b.
c.
d.

3.


Nina's Biking
Distance (km)
18
16
14
12
10
8
6
4
2
0
1
2
3
4
5
6
7
8
9
Day
a.
b.
c.
d.

4.




a.

b.

c.

d.

## Let's Practice

**For 1 – 2: Why are the following examples of discrete data?**

1. The number of students late to school each day of a week

2. The shirt size of the students in grade 6

**For 3 – 4: Why are the following examples of continuous data?**

3. The time workers arrive to work each morning

4. The height of students in grade 6

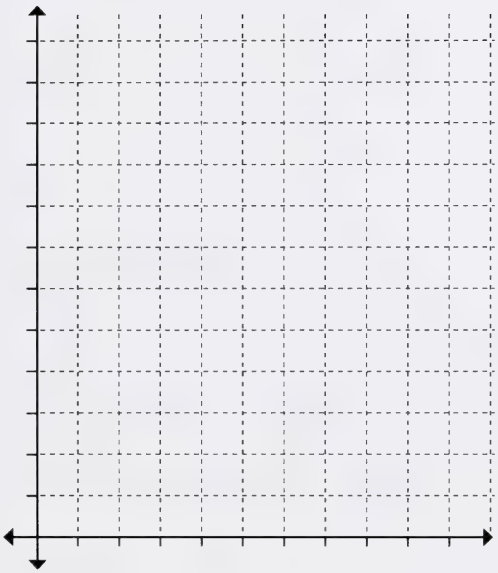
**For 5 - 7: In a game of football a team is awarded three points for a field goal.**

| Field Goals Made | Total Points |
|---|---|
| 0 | 0 |
| 1 | 3 |
| 2 | 6 |
| 3 | 9 |

5. Is the data discrete or continuous?

6. What is a good title for the graph?

7. Create a graph.



**For 8 – 11: A science museum manager records the survey results of visitors that preferred each exhibit. On a typical day there are 650 visitors to the museum.**

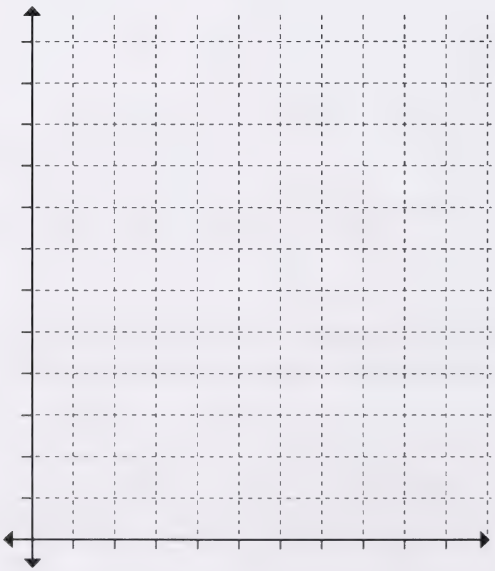
| **Visitor Preferences** | Electricity | Microscope | Sound | Magnets | Weather |
|---|---|---|---|---|---|
| **Number of Visitors** | 12 | 10 | 6 | 15 | 7 |

8. What is the size of the sample for the survey?

9. Is the data discrete or continuous?

10. What is a good title for the graph?

11. Create a graph.



**For 12 – 15: Zach rides his bike 8 kilometres from his home to the library. The table shows part of his journey.**

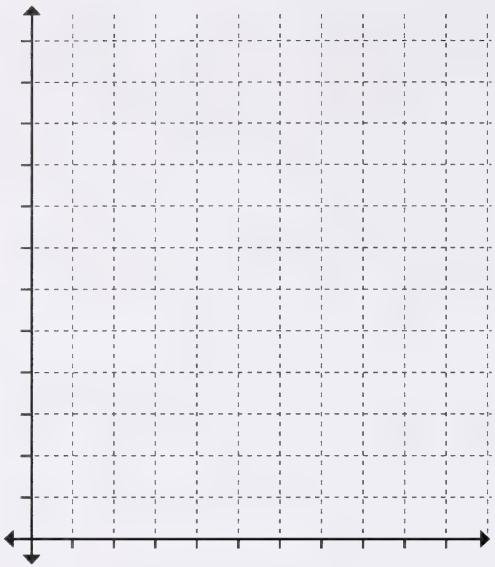
| Time (min) | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 |
|---|---|---|---|---|---|---|---|---|
| Distance (km) | 0.5 | 1 | 1.5 | 1.6 | 1.75 | 2.75 | 3.5 | 4 |

12. Is the data discrete or continuous?

13. What is a good title for the graph?

14. What values should the x-axis represent?

15. Graph the data.



## Mixed Review

**For 1 – 5: Write the first four multiples of each number.**

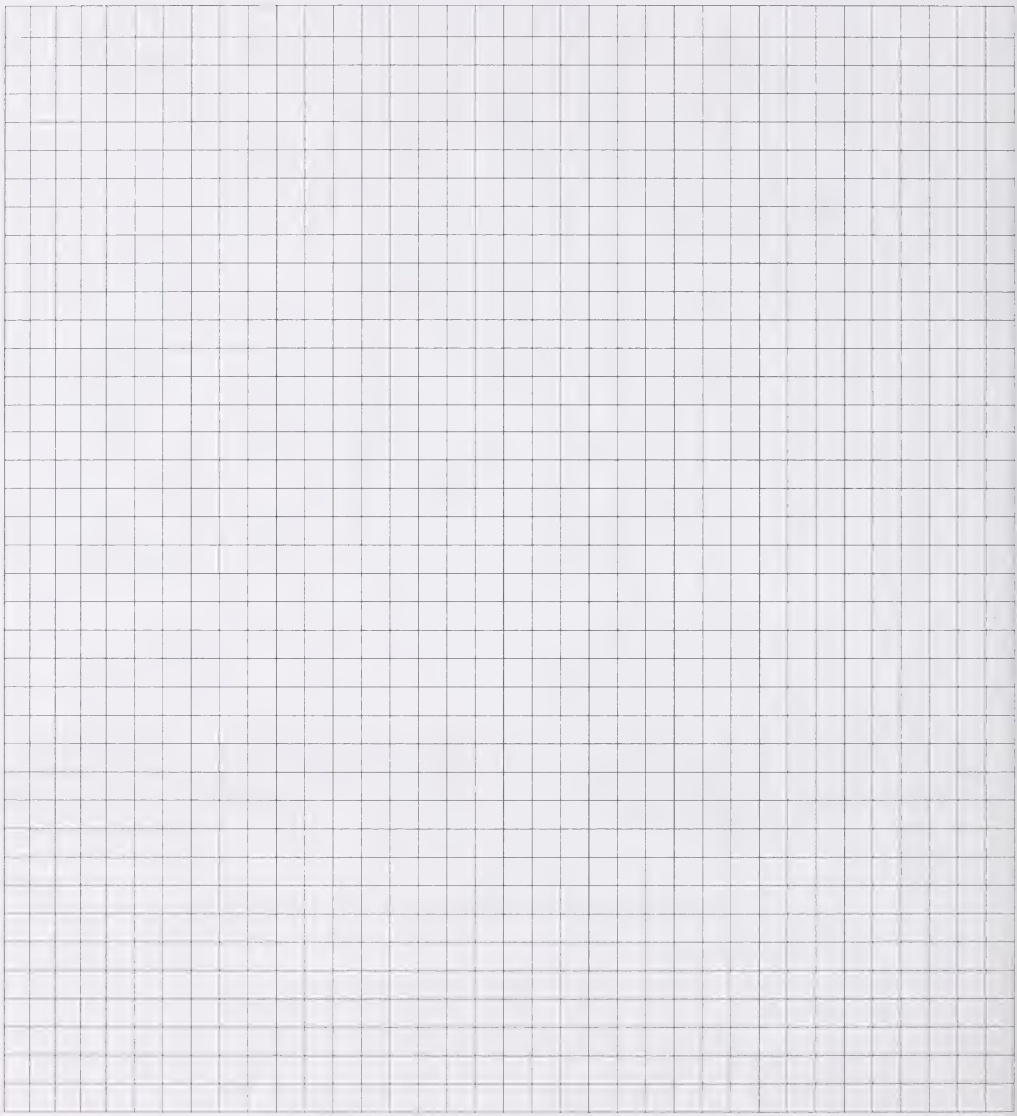
1. 12

2. 10

3. 8

4. 7

5. 15



# Lesson 15

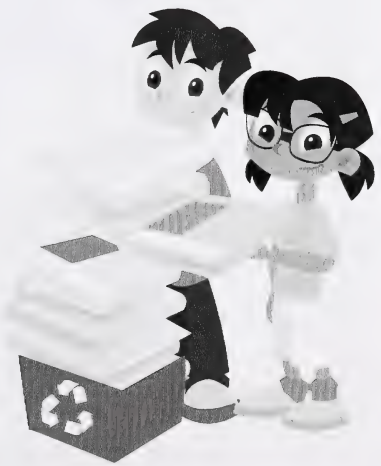
**Analyzing Data**

## Let's Explore

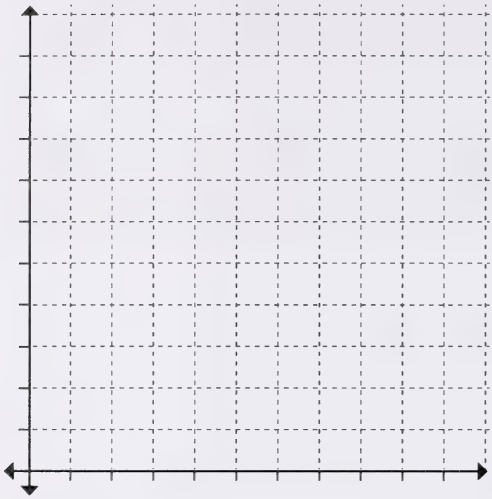
### Exploration 1: Researching the Environment

**Materials:** Internet or an Almanac or Newspapers, Pencil

1. Use the Internet, an almanac or newspapers to find data about the natural environment in your city or region. You can find data for the last several months, years, or decades. For example: water conservation, soil conservation, recycling efforts...
2. Organize data that you have found into a table.



3. Create a line graph of your data over time.



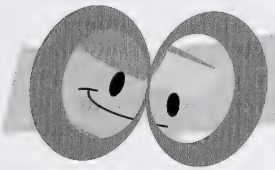
**For 4: Either record oral observations or write them in the space provided. If recording, follow the recording instructions found at the end of this Exploration.**

4. Write three observations you can make by looking at your line graph.

Recording Instructions: Start your recording by saying: My name is _____.

This is Math 6, Unit 2, Lesson 15, Exploration 1.

Be sure to hand in your recording with your Workbook.

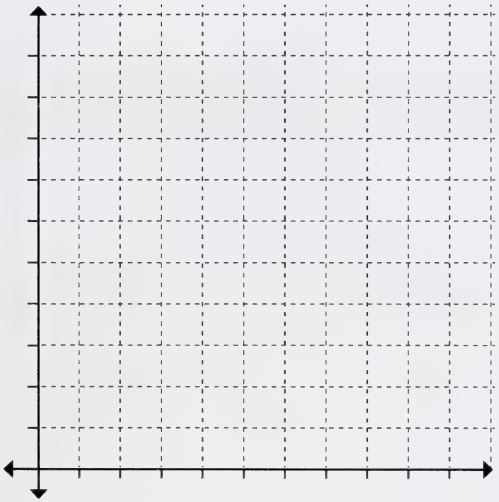


## Let's Explore

### Exploration 2: Researching Population Trends

**Materials:** Internet or Newspapers, Pencil

**Find a resource that reports the population of your city or town for the past ten to twenty years. Create a line graph of the population. Answer the following questions:**



1. Is the population in your area increasing or decreasing?

2. How can you tell?

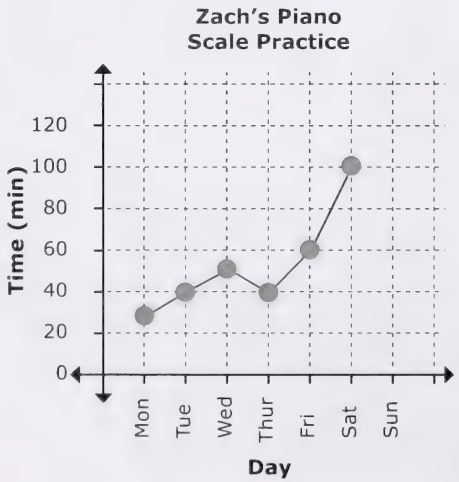
3. Find the difference in the population between the last two years or increments.

4. If this difference occurs for the next year or increment, what will be the population of your area?

## Let's Practice

**For 1 – 3: Use the line graph to answer the following questions.**

The graph shows the amount of time Zach practices piano scales each day.



1. Which day did Zach practice more than one hour?

2. Complete this statement: Zach's practice time _____ from Monday to Saturday.

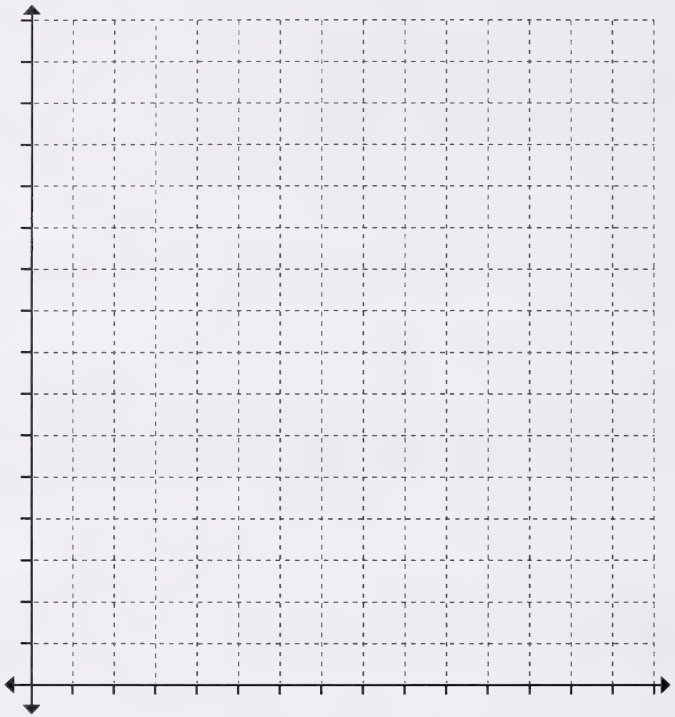
3. Between which two days was there a decrease in Zach's practice time? How can you tell?

**For 4 – 7: Use the data provided to answer the following questions.**

The table shows lift ticket sales for a popular ski area for a thirteen year period of time.

| **Year** | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Number of Tickets (in thousands)** | 3 | 3.2 | 3.1 | 4 | 6 | 6.1 | 6.5 | 5.5 | 5 | 6 | 7.5 | 8 | 8.2 |

4. Create a line graph for the data.



5. Has the number of lift tickets sold been increasing or decreasing? Explain.

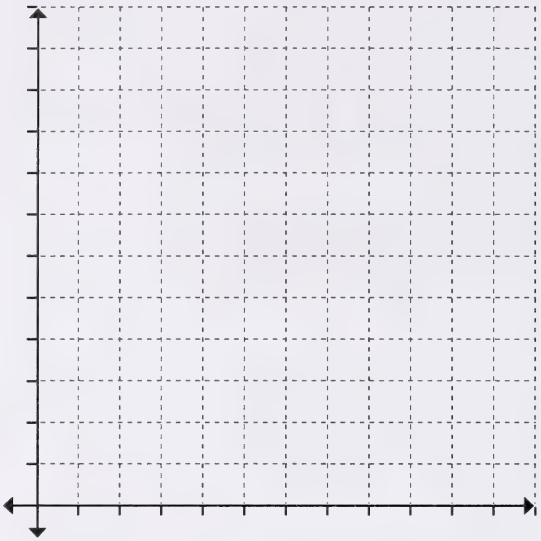
6. In what year do you think the number of tickets sold could reach 10 000?

7. Do you think the pattern can be sustained forever? Why or why not?

**For 8 – 10: Conduct an experiment. Roll a pair of dice 100 times. Record the data in the frequency table provided.**

| How many times do the dice give each sum? | | |
|---|---|---|
| **Sum** | **Tally** | **Frequency** |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |

8. Create a graph of the data.



9. Is this data discrete or continuous?

10. Which sum did you roll most frequently?

11. Do you think if you repeated this experiment that this result would happen again? Why or why not?

## Mixed Review

**For 1 – 3: Write the improper fraction for each picture.**

1.

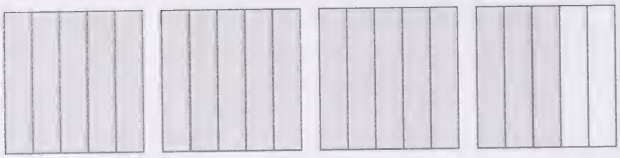
2.

3.

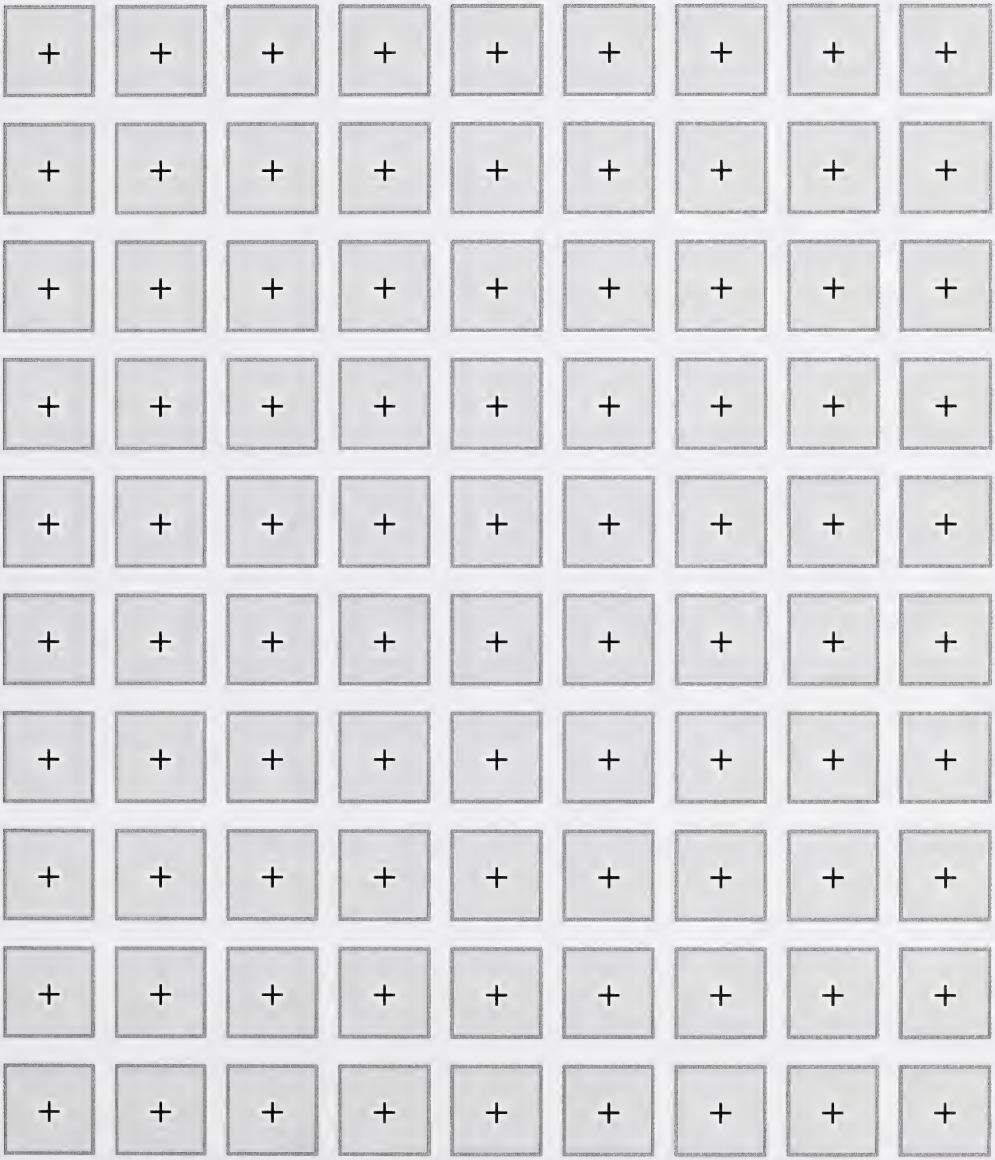
**For 4 – 6: Write the mixed number for each picture.**

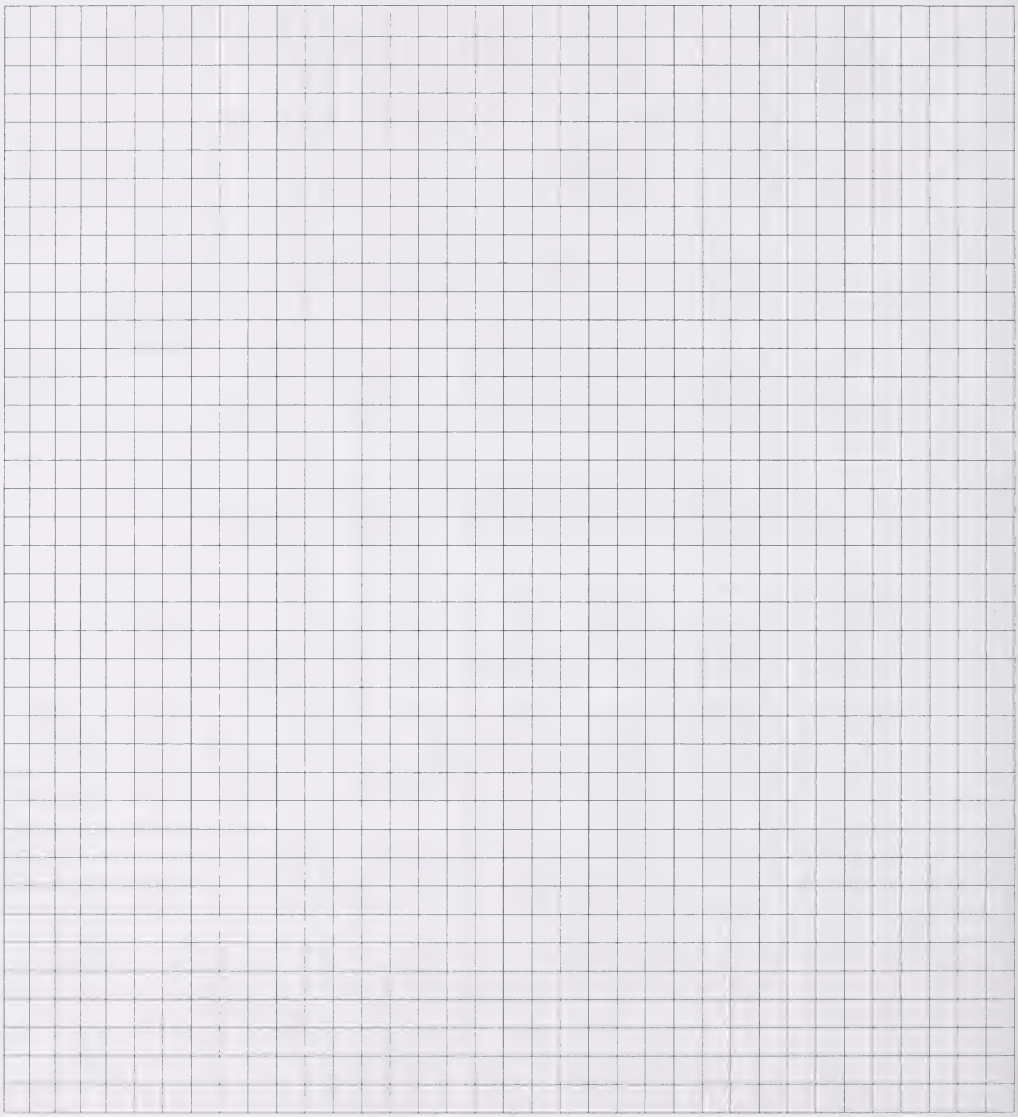
4.

5.

6. 

**Integer Counters**





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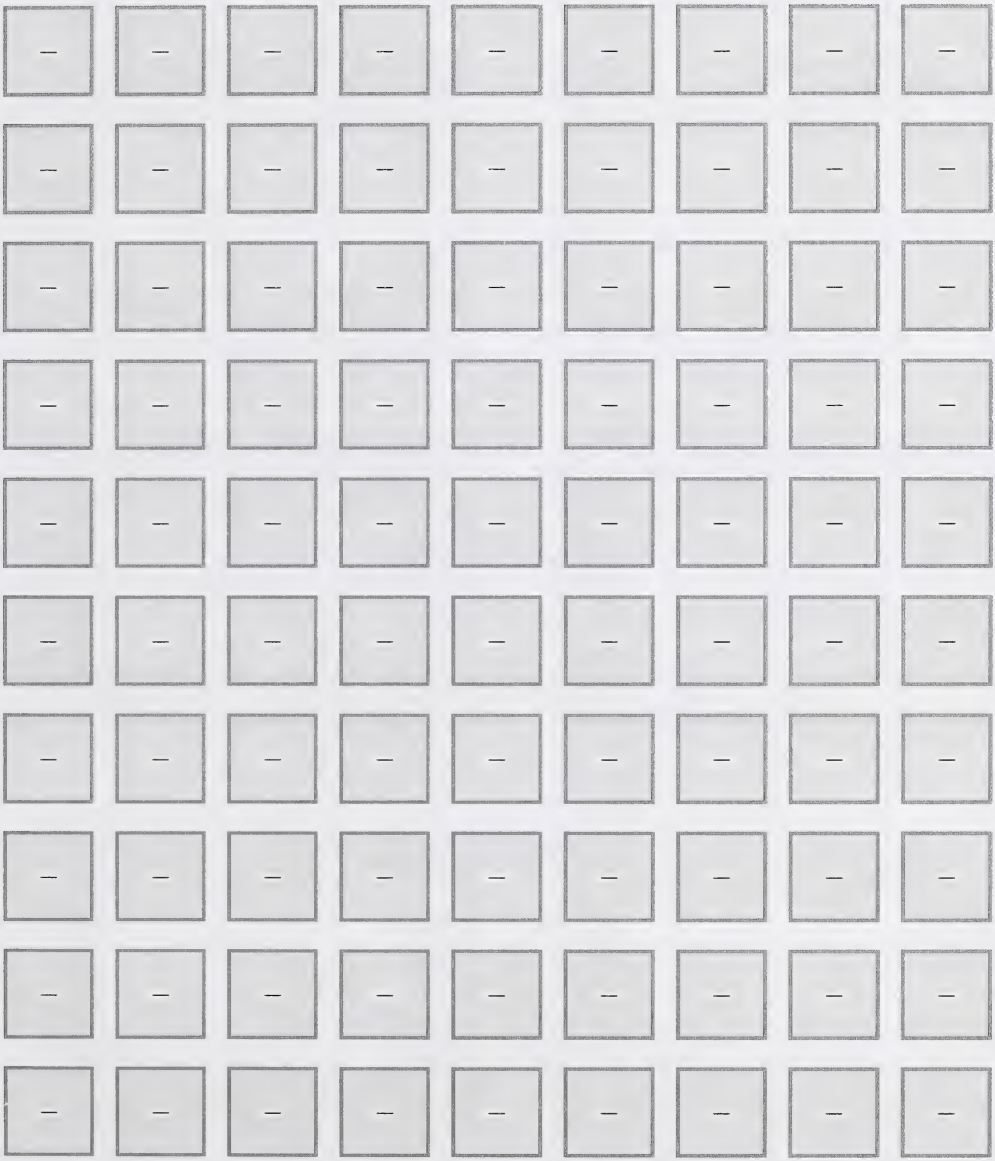
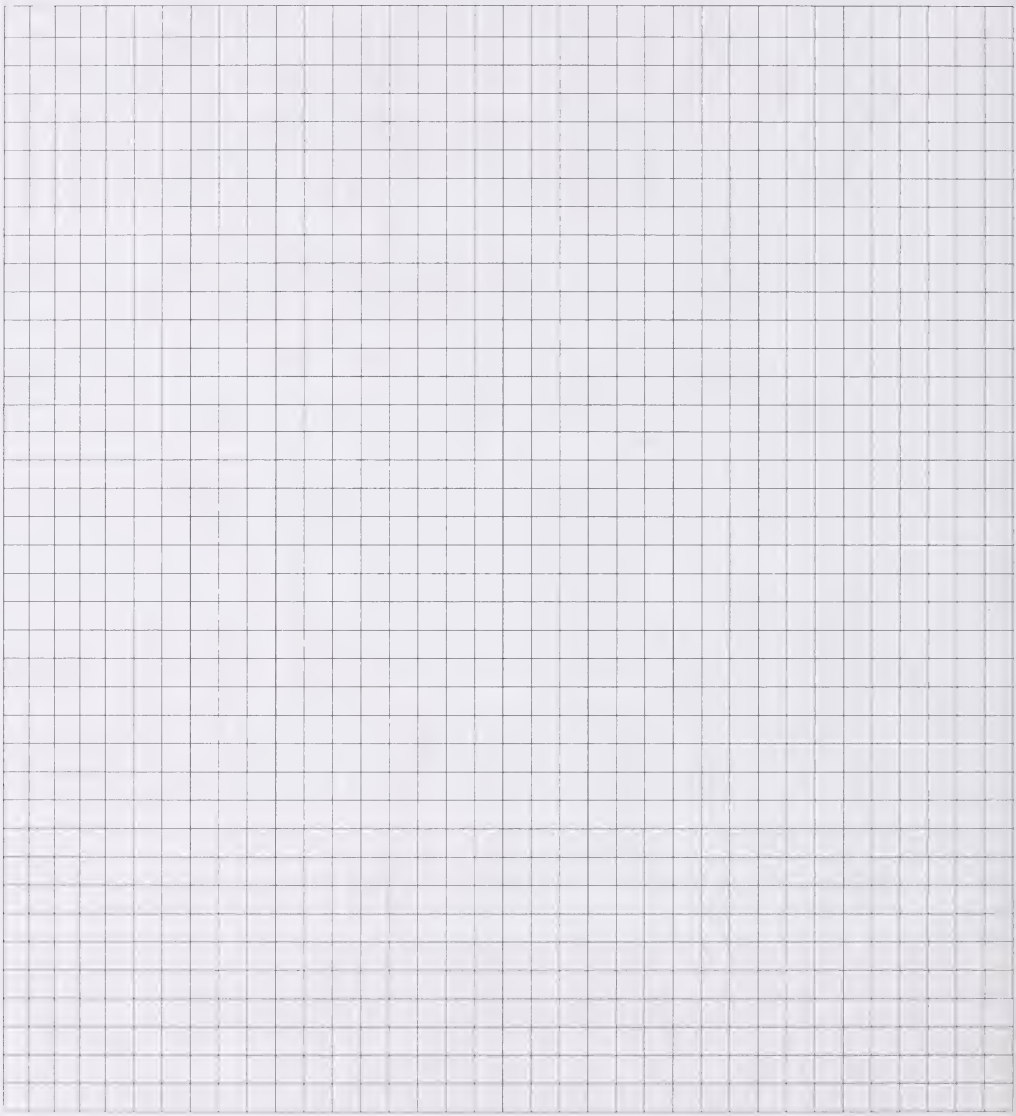
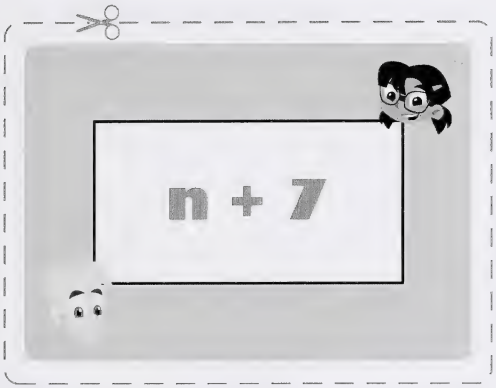
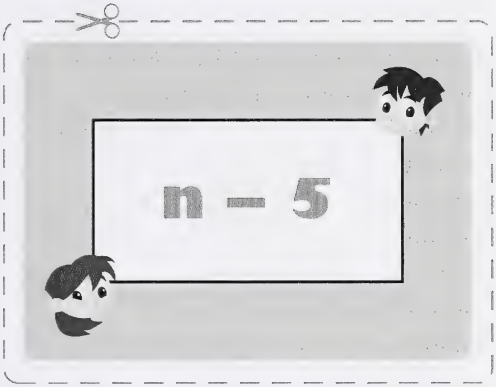
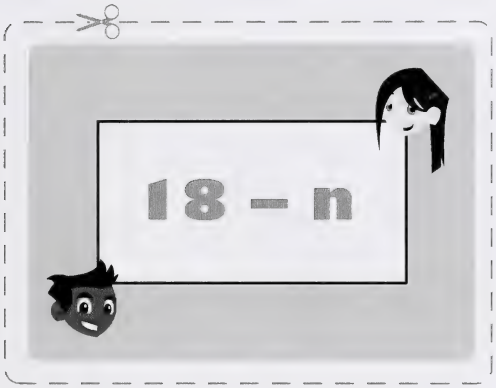


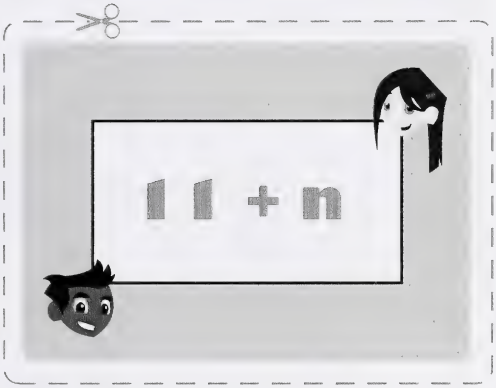


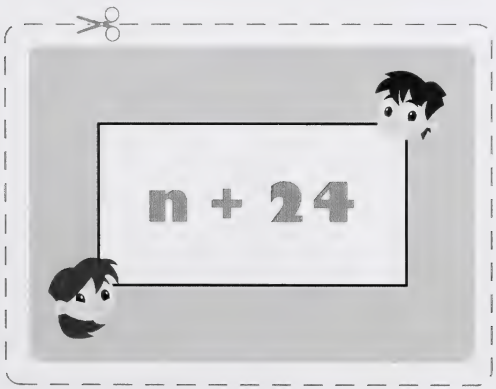
**Function Rule Cards**

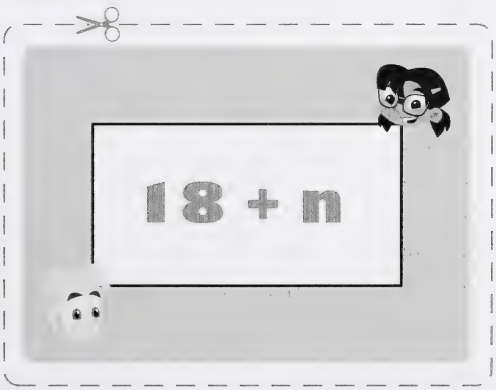


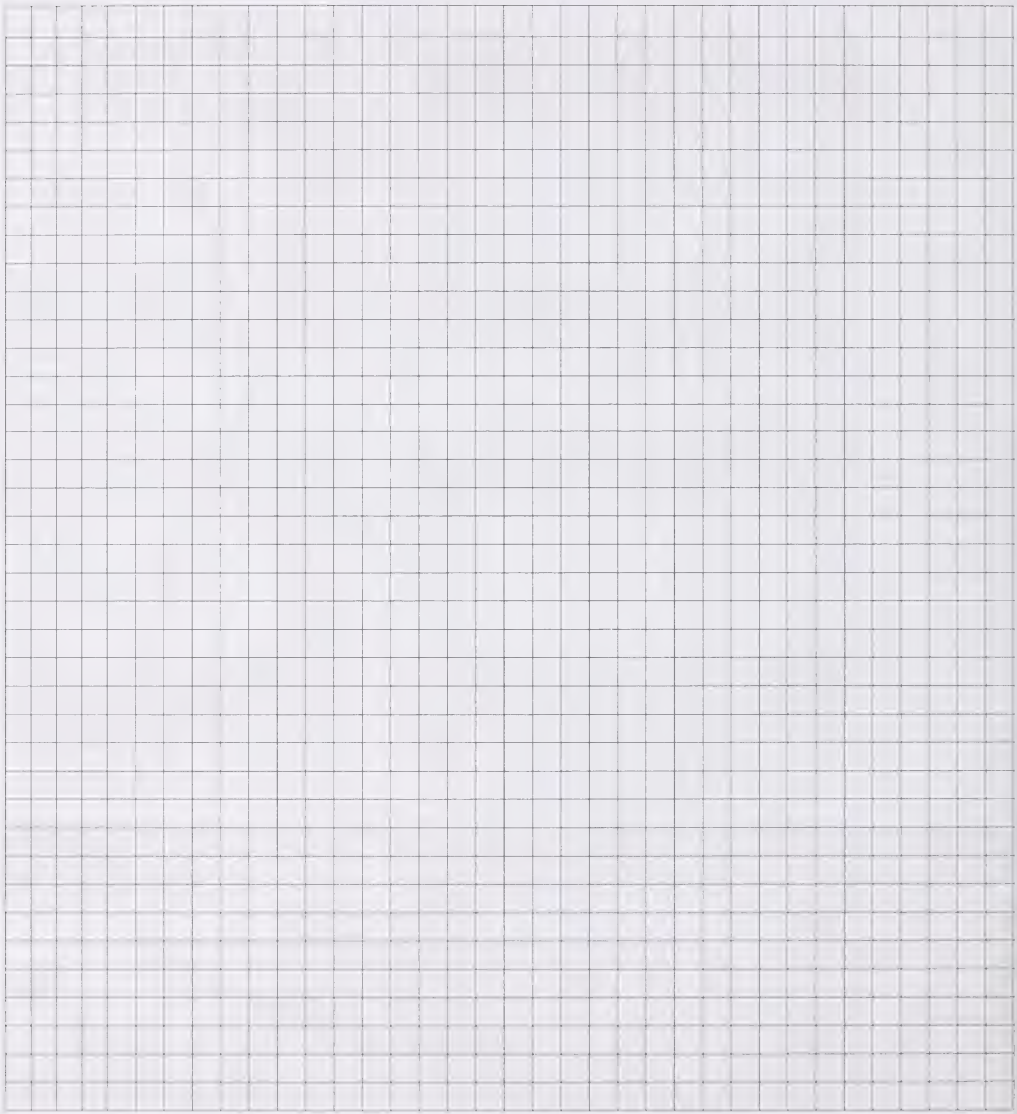





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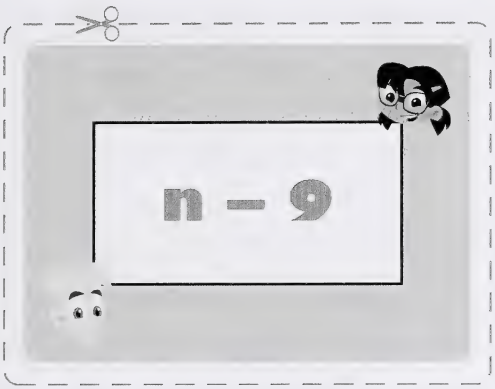


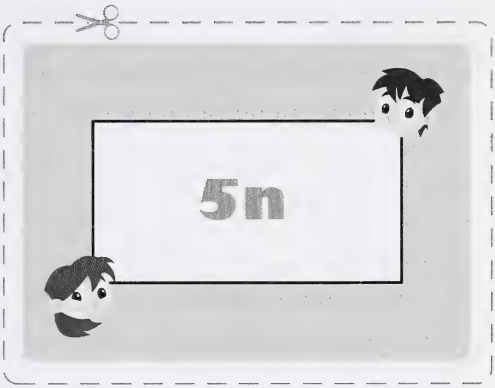


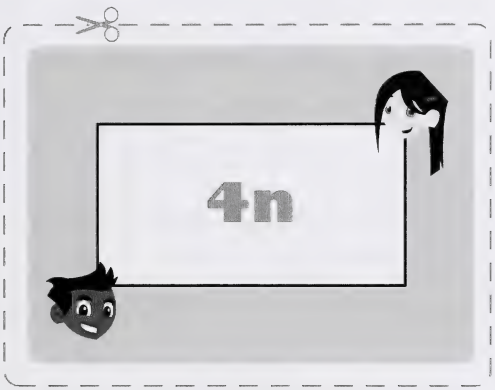


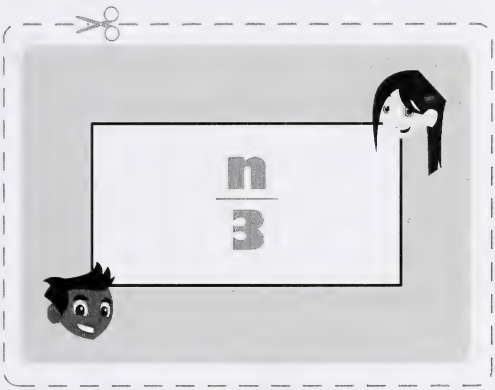


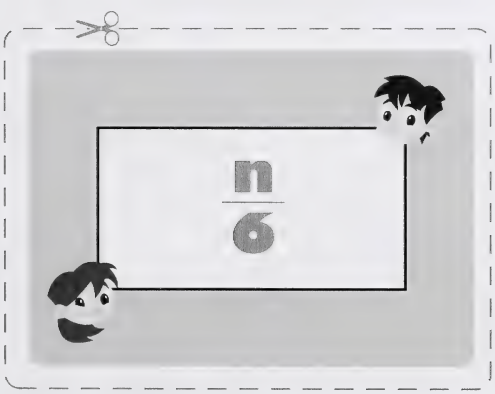


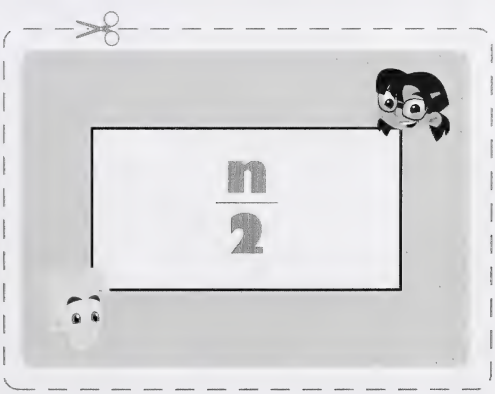

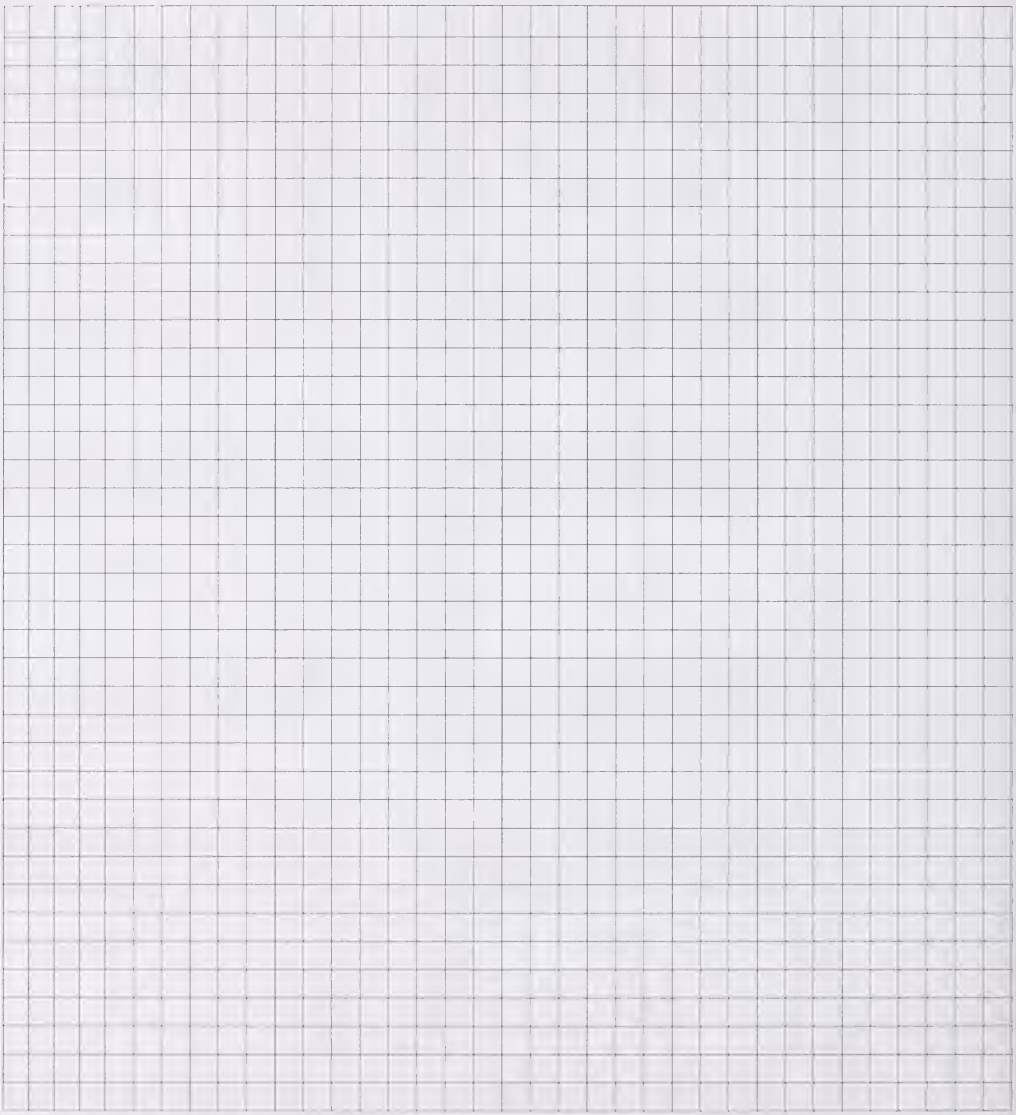

**Function Tables**

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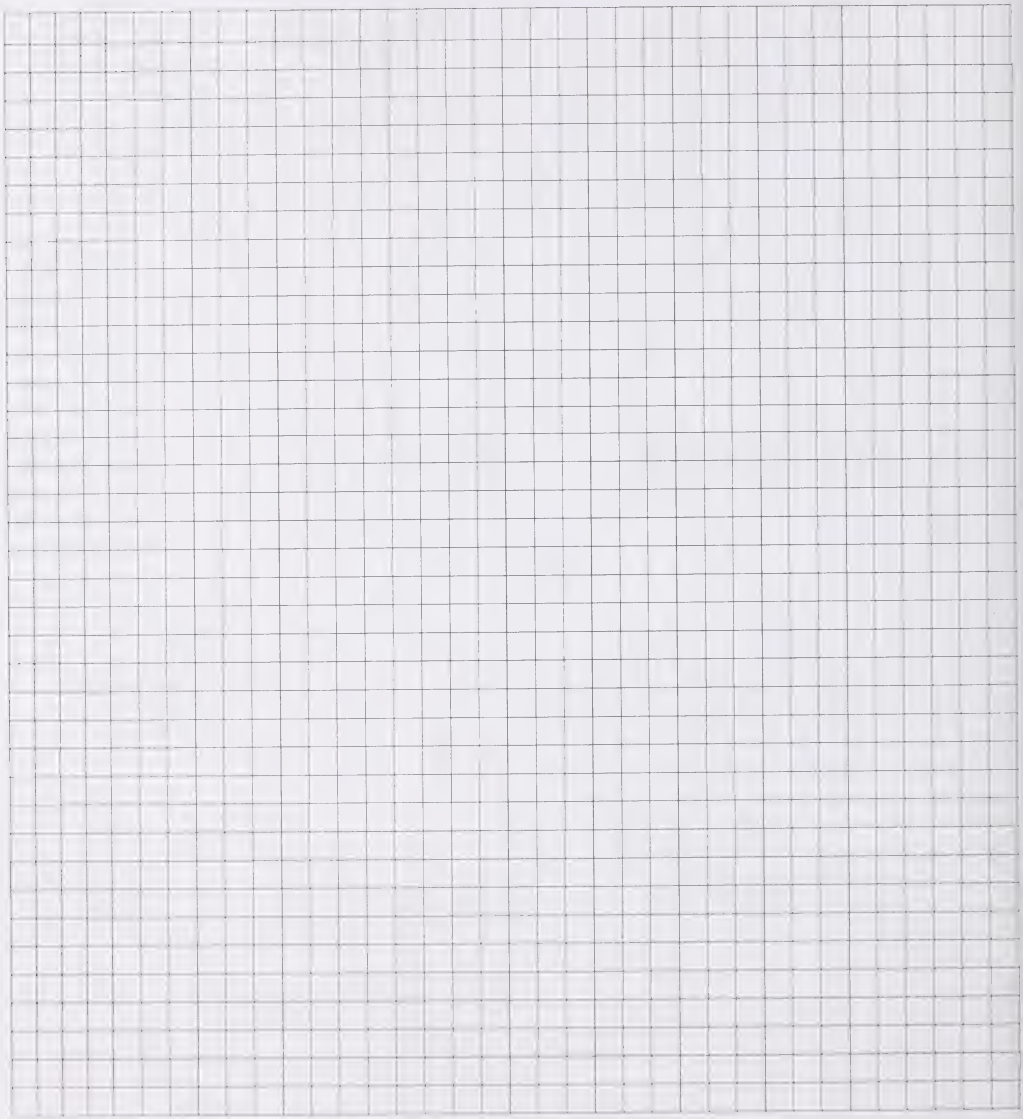

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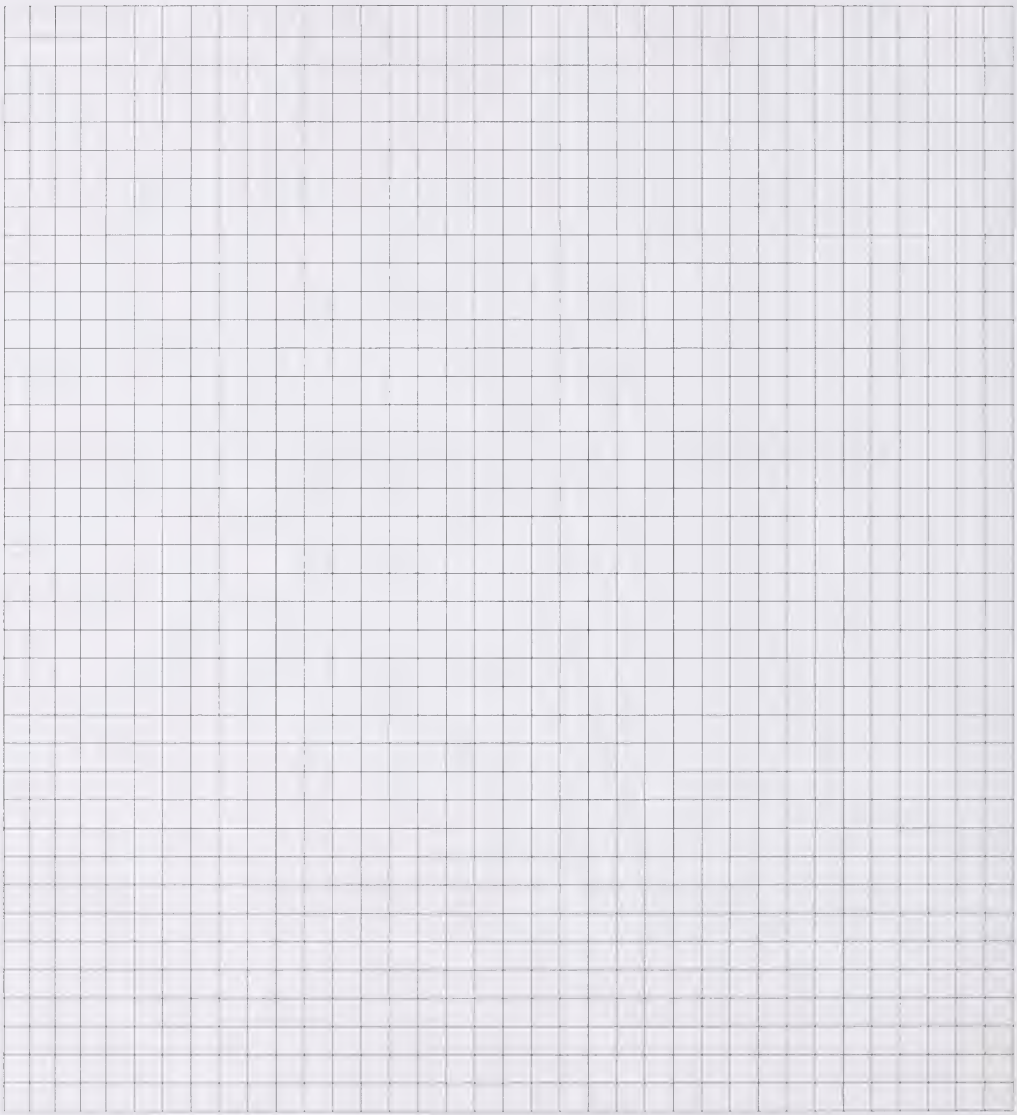

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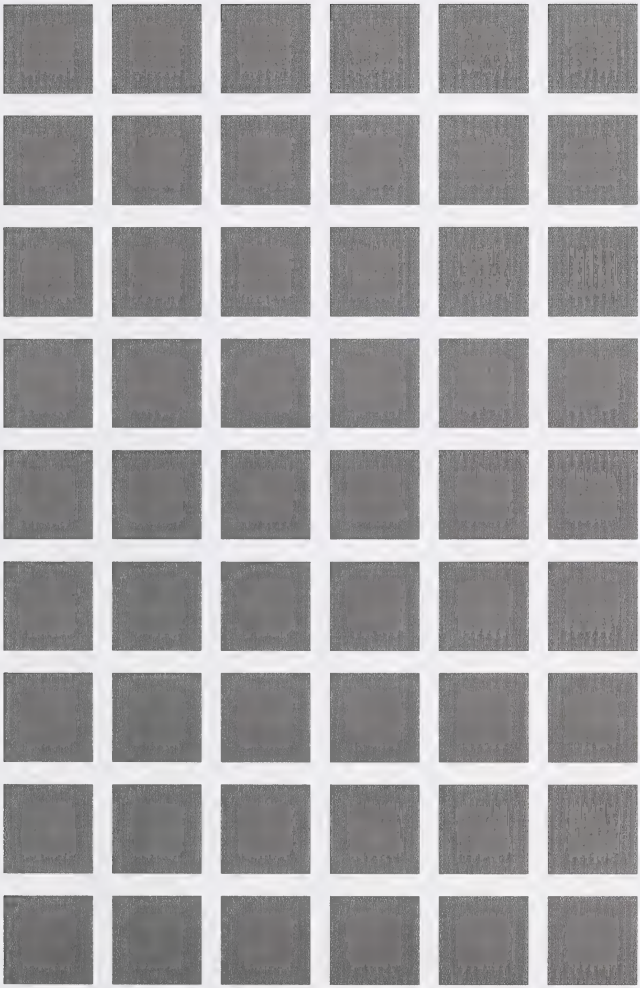
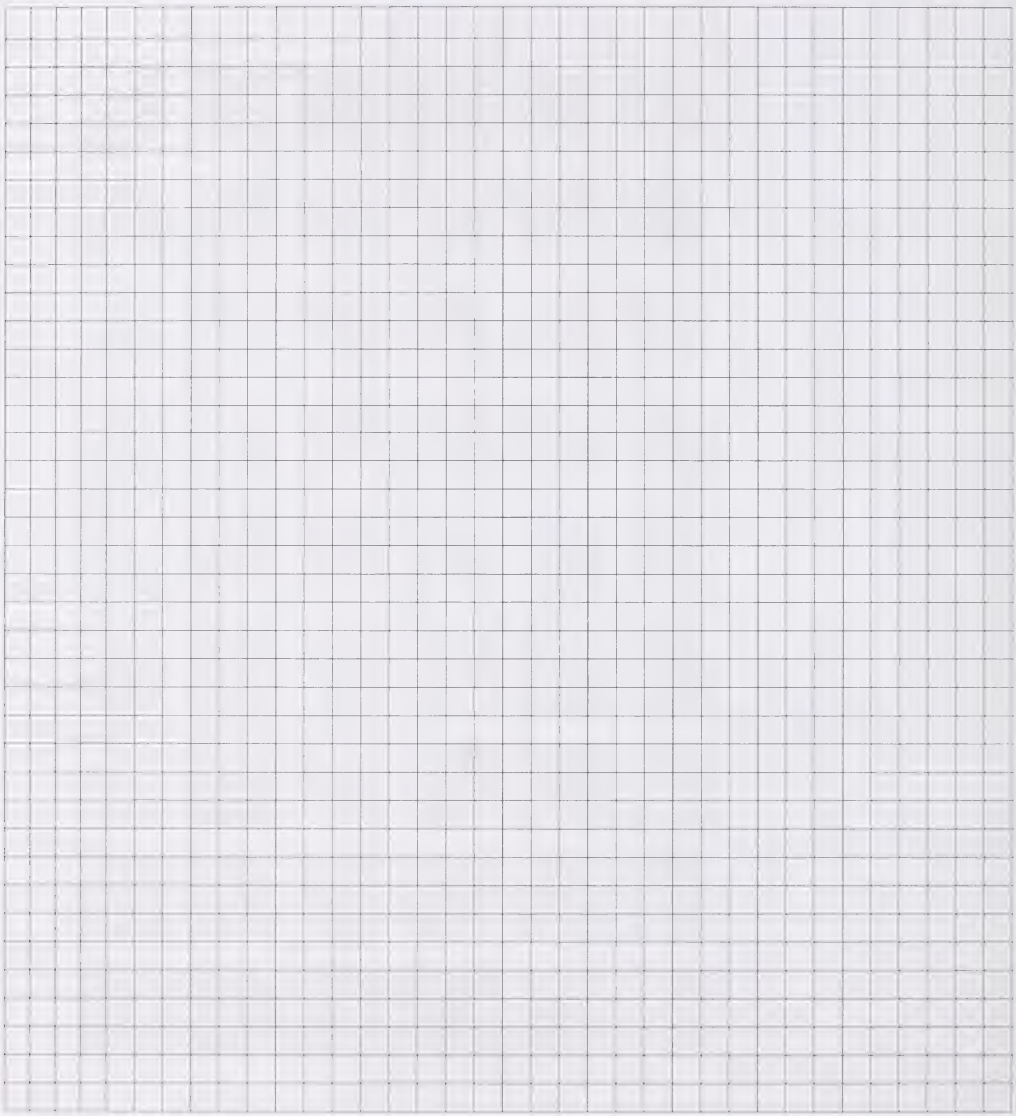
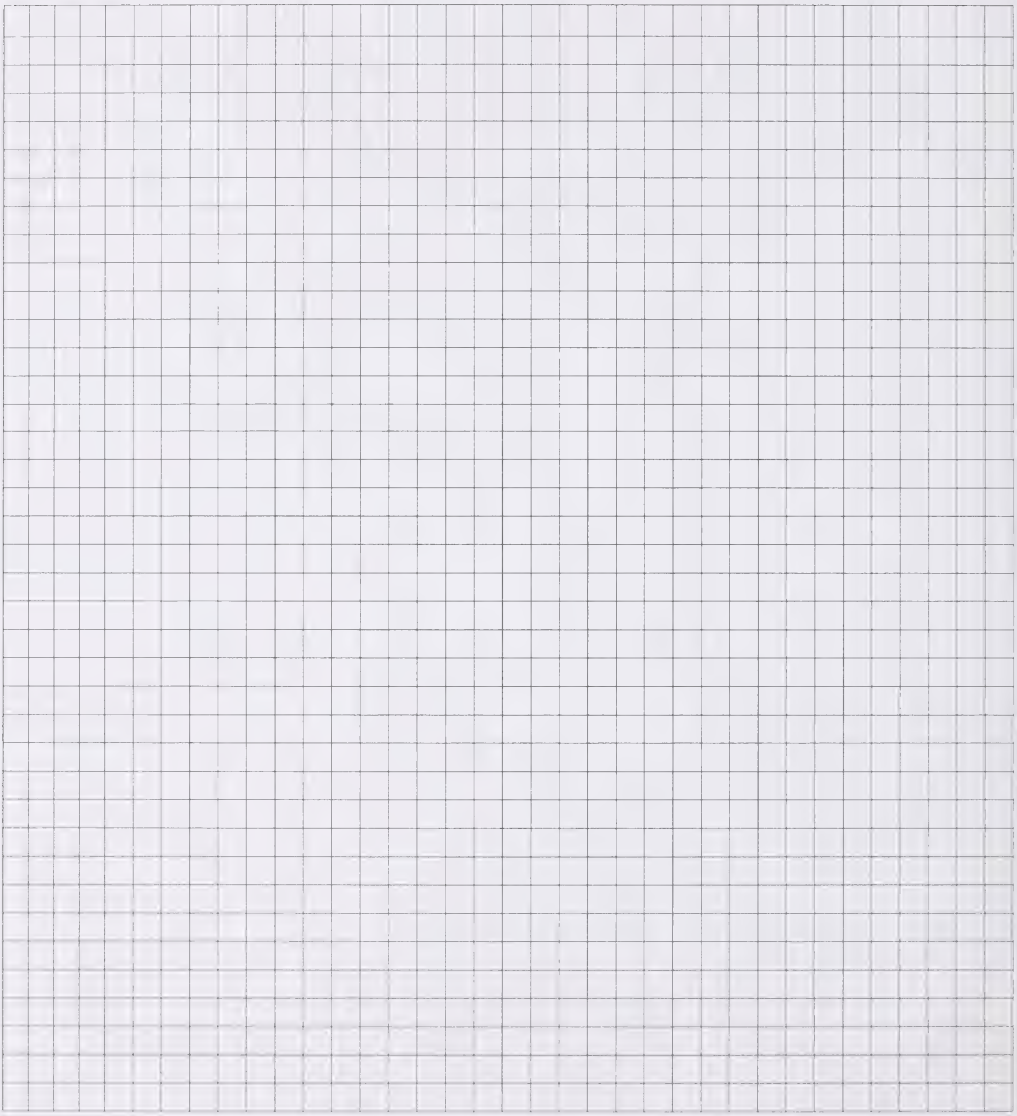
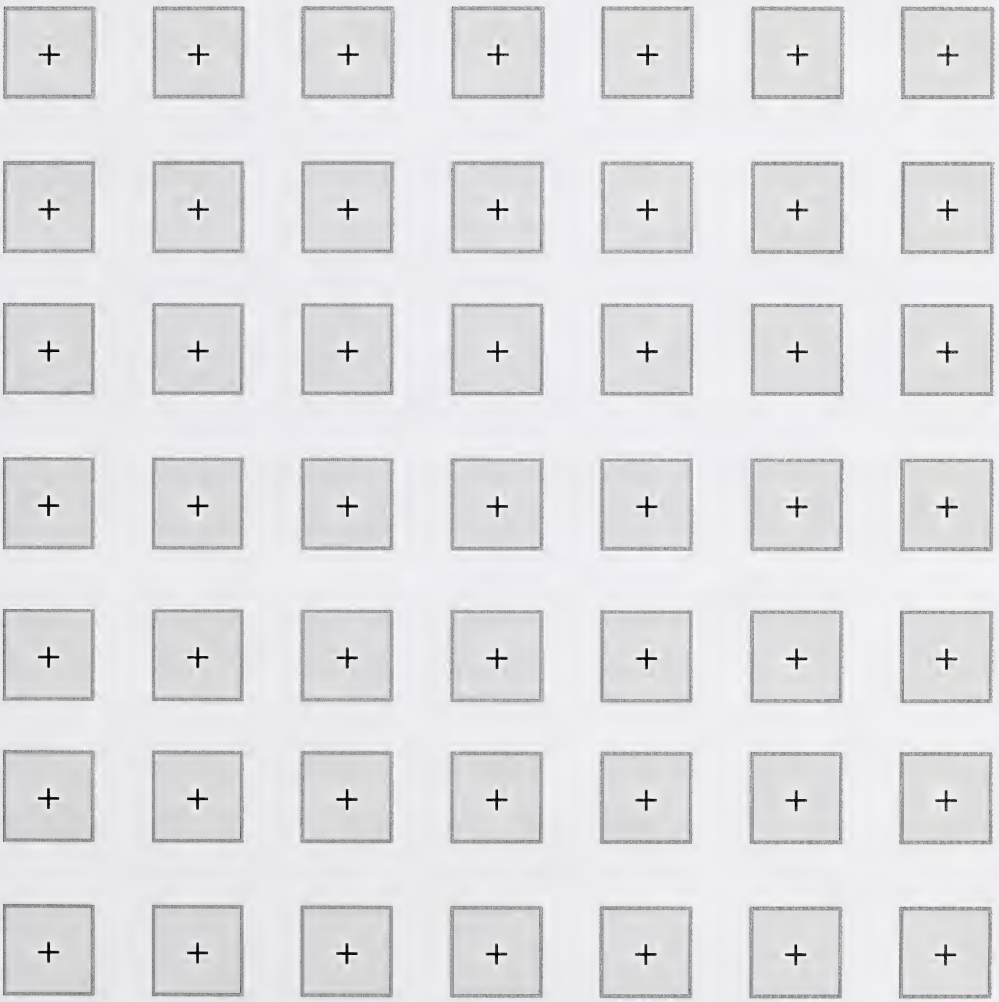


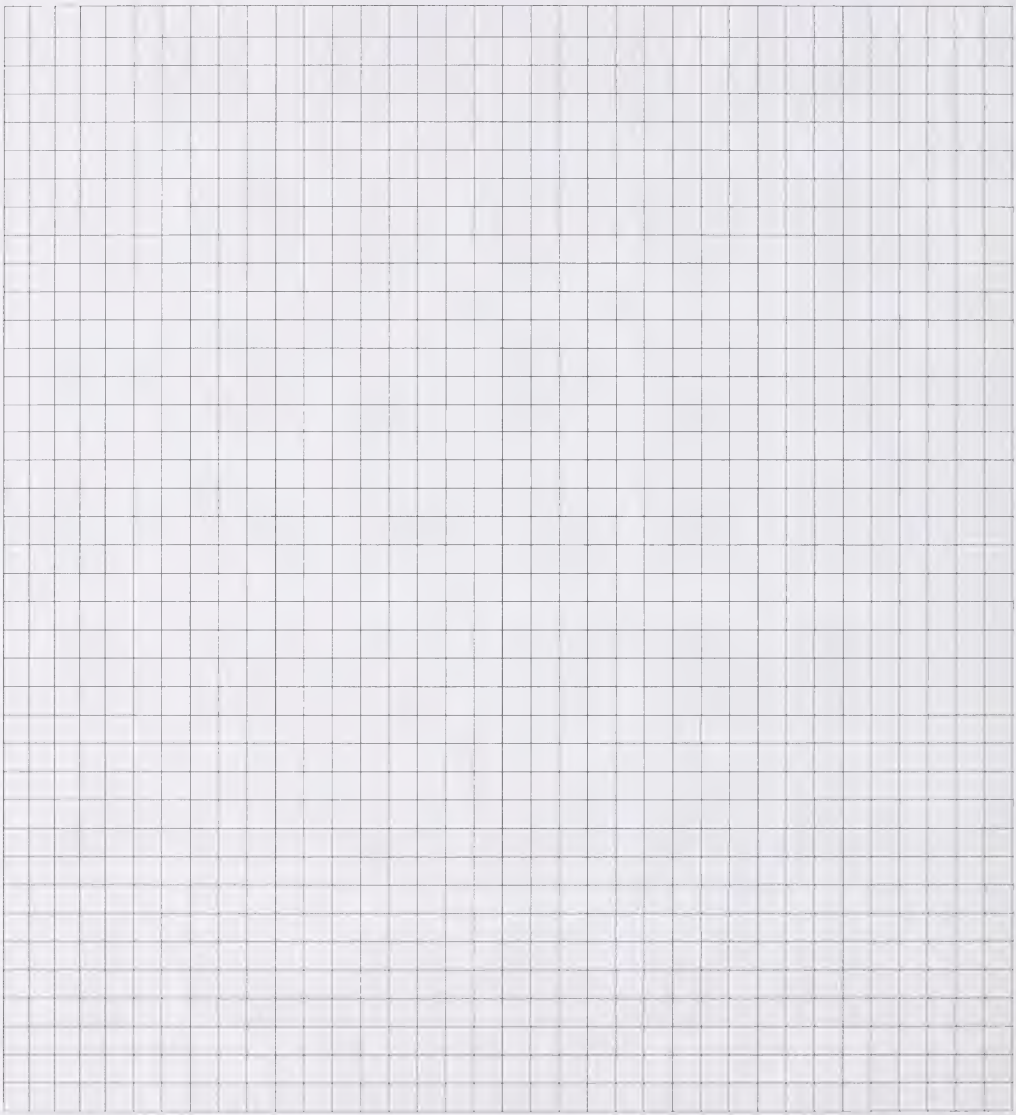


**Balance Beam Mat**



**Balance Beam Models**





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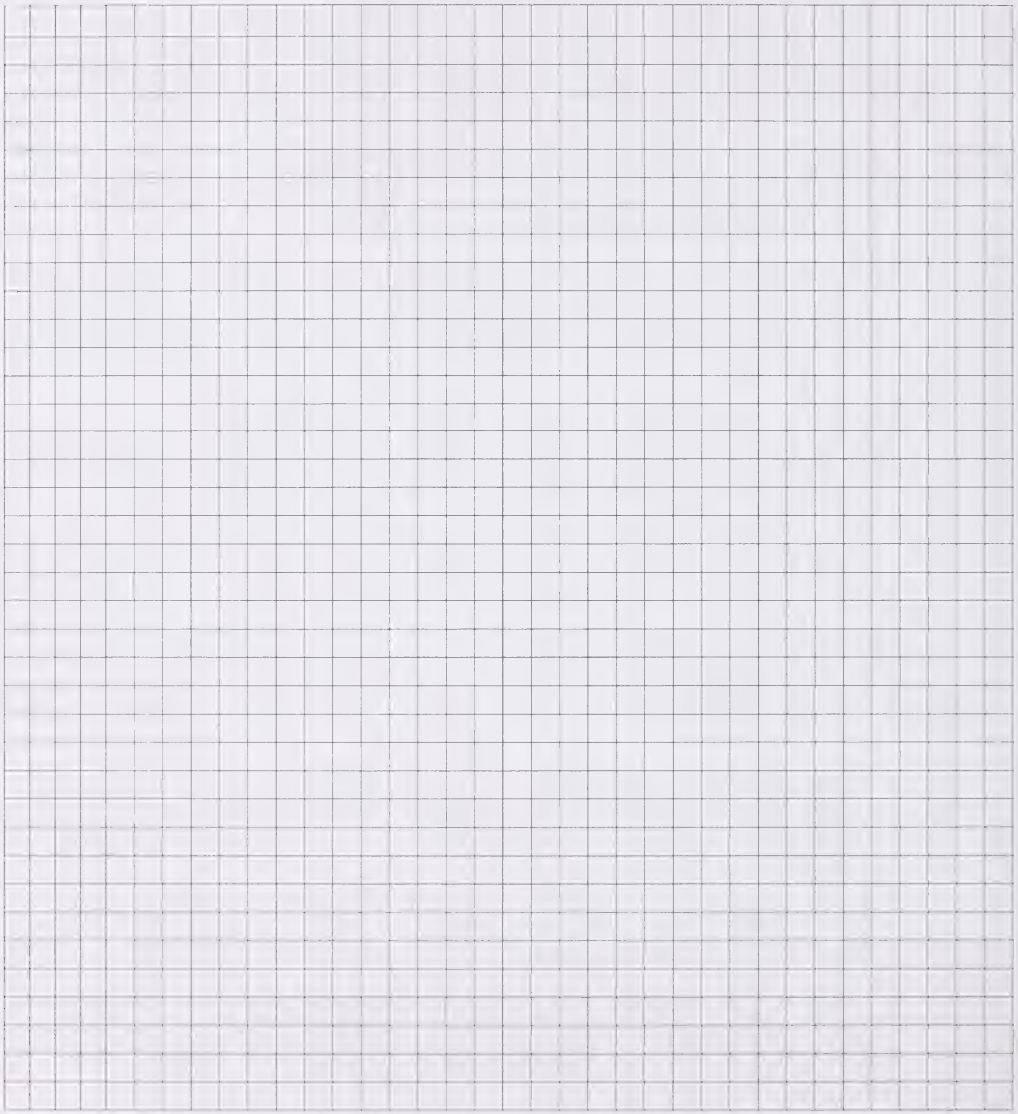

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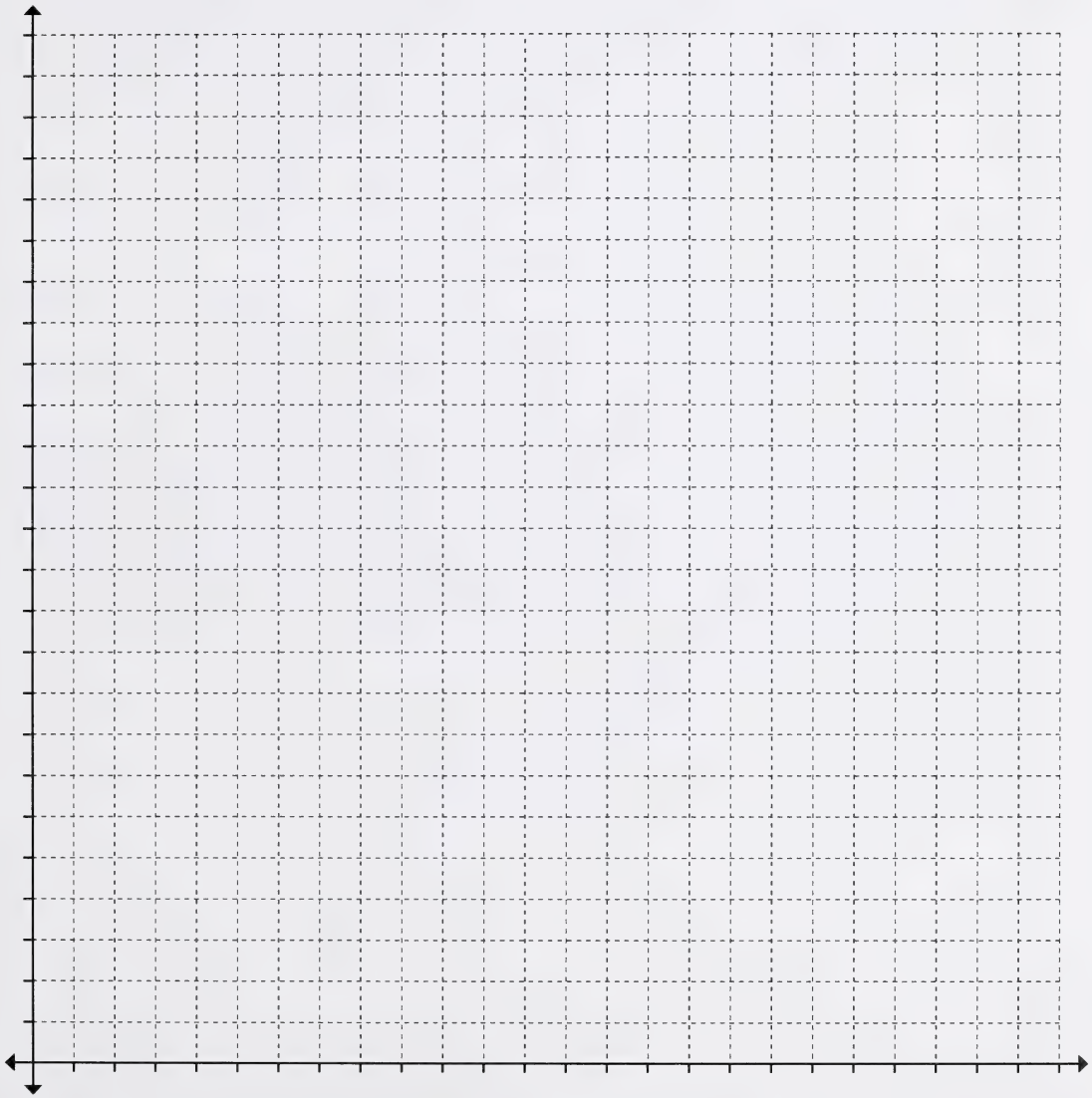

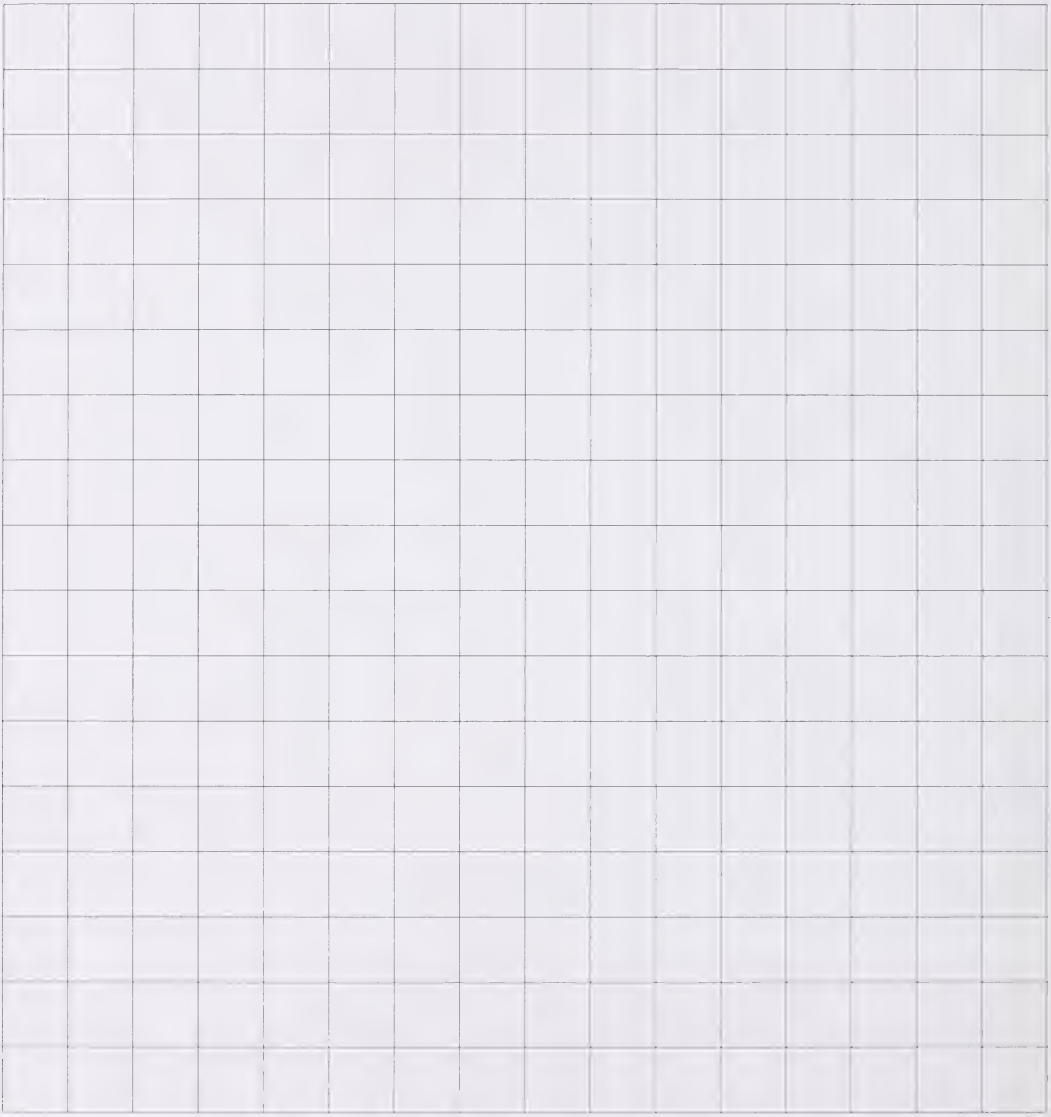

**Sources - Workbook**

Lesson 1
*Page 2-6:* Questions 9 – 12, http://www.gate1travel.com/north-america-travel/Canada-weather.htm

*Page 2-7:* Questions 13 – 16, http://geology.com/below-sea-level/

Lesson 5
*Page 2-36:* Question 21, http://www.climate.weatheroffice.ec.gc.ca/climate_normals/results_e.html?Province=ALL&StationName=victoria&SearchType=BeginsWith&LocateBy=Province&Proximity=25&ProximityFrom=City&StationNumber=&IDType=MSC&CityName=&ParkName=&LatitudeDegrees=&LatitudeMinutes=&LongitudeDegrees=&LongitudeMinutes=&NormalsClass=A&SelNormals=&StnId=118&

Lesson 9
*Page 2-69:* Question 17, http://www.cdc.gov/nchs/data/nhanes/growthcharts/set1clinical/cj41l022.pdf

Lesson 11
*Page 2-90:* Question 13, www.statcan.gc.ca, http://www40.statcan.gc.ca/l01/cst01/demo04a-eng.htm

Lesson 14
*Page 2-116:* Question 4, http://www.kidsgrowth.com/stages/viewgrowthcharts.cfm?id=BH318

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